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RHYNCHOTA.—Vol. III.
(HETEROPTERA—HOMOPTERA)

BY

W. L. DISTANT.

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ALERE FLAMMAM.

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PREFACE.

WITH the conclusion of this the third volume of the Rhynchota, the account of the Indian insects belonging to that Order is carried to the end of the family Fulgoridæ. The preparation of this volume has been an arduous piece of work, as the insects described in it are obscure and little known. More especially does this apply to the forms included in the Fulgoridæ. The admirable classification of this family initiated by Stål and continued by Dr. Melichar, of Vienna, left untouched a large amount of material that had to be examined and worked out.

Though it is hoped that the present volume will throw much additional light on the natural sequence and affinities of the minor groups of this family, it must yet be borne in mind that the work as a whole is primarily designed for collectors in India as an aid to the identification of insects, which, though probably numerous enough in that country and of economic importance, have not been much collected or observed. This point the Author, Mr. Distant, has again and again referred to in the following pages.

This is the first volume of the Handbooks on the Fauna of British India published since the death of Dr. Blanford, under whose Editorship the series was initiated and carried on for over twenty years. The many obituary notices that have appeared in the publications of the learned and scientific

societies fully testify to the great value of the work done by him during a long and strenuously productive life, and to the loss that science has sustained by his death. To few, however, will that loss be personally so great as to those who under his direction were working for the Fauna of India series.

As his successor it will be my endeavour to carry on the work on the lines laid down by him.

In conclusion I may add that previous to Dr. Blanford's death the sanction of the Secretary of State for India had been accorded to the preparation of the following volumes, in addition to this one on the Rhynchota now published. Three volumes on various groups of Beetles, a second volume on the Butterflies, and a volume on the Land-Shells of India.

The last-mentioned work had been undertaken by Dr. Blanford himself and a portion of it prepared. The unfinished MS. is now in the hands of Col. Godwin-Austen, who, as Blanford's intimate friend and co-worker with him on the Mollusca of India, has kindly undertaken to complete the volume.

Quite lately also sanction has been accorded to the preparation of a volume on the Phytophagous Beetles by Mr. M. Jacoby, the well-known specialist on that group.

Of these various volumes of the Series, a half-volume on the Longicorn Beetles and the volume on the Butterflies will, it is hoped, be ready for publication in the current year.

C. T. BINGHAM.

February 1906.

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ERRATA.

Page 70. Line 9 from top for "t. xi." read "t. ii."
" 90, 124 & 131. Date of J. A. S. B. liii is 1885.
" 108. Line 16 from bottom for "ganameda," read "gamameda."
" 112. " 3 " " for "xiv," read "xv."
" 115. " 20 " " for "xiv," read "xv."
" 118. " 16 " " for "v," read "vi."
" 128. " 19 " " for "ransonetti," read "ransonneti."
" 167. " 18 " top for "(1864)," read "(1834)."
" 171. " 18 & 20 from bottom for "(1825)," read "(1857)."
" 188. " 7 from top for "lvii," read "vii."
" 222. " 4 " bottom for "324," read "683."
" 243. " 13 " " for "13," read "134."
" 279. " 26 " " for "xi," read "ii."

Order RHYNCHOTA.

Suborder *HETEROPTERA.*

Family ANTHOCORIDÆ.

This family comprises a number of small insects, and is allied to the Capsidæ, from which it may be at once separated by the structure of the hemelytra, which contain an embolium.

Very little is still known as regards the species of British India. Dr. Reuter, who published a monograph of the family in 1884, included only two species from our fauna with which he was acquaiuted, though he referred to two others described by Motschulsky and three by Fieber, which he had not seen. Of these latter five little-understood species, four are now figured in the following pages. Walker described three species: of these one belongs to the family Lygæidæ, and the other two represent one species.

In framiug the synopsis of the following genera I have adhered to Reuter's classification in subfamilies; if I have not followed his other divisional characters, it is for the reason that my available material is insufficient either in quantity or condition to discriminate the smaller characters on which he relies. Besides which, this series of volumes is intended for the use of Indian naturalists rather than to serve the purposes of a universal monograph.

Synopsis of Subfamilies.

A. Rostrum three-jointed; tarsi with two or three joints .... *Anthocorinæ.*
B. Rostrum four-jointed; tarsi with two joints.. *Microphysinæ.*

Subfamily I. ANTHOCORINÆ.

Anthocorina, *Reut. Act. Soc. Sci. Fenn.* xiv, pp. 557, 558 (1885).

For the discrimination of this subfamily I rely chiefly on Reuter's first-mentioned character, viz. the three-jointed rostrum. As regards the tarsi, I recognize both those with two and three joints, and not ouly those with three joints as restricted in his diagnosis by Reuter.

Synopsis of Genera.

A. Antennæ wholly, or with the apical joints, longly pilose or setose.
  a. Anterior femora broadly thickened, spinose beneath . . . . OSTORODIAS, p. 2.
  b. Anterior femora not prominently incrassated.
    a. Head long and slender, longer than breadth including eyes . . . . ARNULPHUS, p. 3.
    b. Head about as long as breadth including eyes.
      a'. Body above more or less longly pilose or setose.
        *a*². Anterior margin of pronotum about half the width of posterior margin; lateral margins of corium a little convex . . . . AMPHIAREUS, p. 4.
        *b*². Anterior margin of pronotum about one-third the width of posterior margin; lateral margins of corium concavely sinuate . . . . LIPPOMANUS, p. 5.
      b'. Body above neither prominently pilose nor setose . . . . EUSPUDÆUS, p. 5.
B. Antennæ neither pilose nor setose.
  a. Anterior and posterior femora strongly incrassate and spinose beneath . . . . SESELLIUS, p. 6.
  b. Anterior femora, only, thickened and spinose beneath . . . . ODONTOBRACHYS, [p. 7.
  c. Femora neither thickened nor spinose . . . . . . TRIPHLEPS, p. 8.

Genus OSTORODIAS.

Ostorodias, *Dist. A. M. N. H.* (7) xiv, p. 219 (1904).

Type, *O. contubernalis*, Dist.

Distribution. N.W. Himalayas.

Elongate, subdepressed; head broad, not columnar, about as broad (including eyes) as long; antennæ four-jointed, first joint moderately thickened, not reaching apex of head, second joint thickened, about as long as head, third and fourth shorter, subequal in length and longly setose; rostrum robust, three-jointed, first joint not quite reaching base of head, second joint about as long as first, but more slender, third joint short, about reaching anterior coxæ; eyes subprominent; pronotum with a narrow obsolete anterior collar and a raised central longitudinal carination, on each side of which the surface is laterally deflected and distinctly foveate, anterior margin about half the width of posterior margin, which is concavely sinuate; scutellum long, subtriangular, with two profound basal foveæ at base; corium with the margins subparallel, the cuneus large and semicircular; membrane with four subparallel veins; tarsi apparently three-jointed, as can be seen from three indifferent specimens; anterior femora broadly thickened, spinose beneath.

1472. **Ostorodias contubernalis**, *Dist. A. M. N. H.* (7) xiv, p. 219 (1904).

Fig. 1.
Ostorodias contubernalis.

Black; corium sordidly stramineous, cuneus pale piceous, membrane smoky hyaline; apices of femora and the whole of the tibiæ and tarsi dull stramineous; head and pronotum obscurely punctate, the latter faintly transversely strigose; scutellum obscurely punctate; hemelytra finely tomentose; other structural characters as in generic diagnosis.

Length $3\frac{1}{3}$ millim.

Hab. N.W. Himalayas (*E. P. Stebbing*, *Brit. Mus.*).

In galleries of the beetle *Polygraphus* sp. in spruce-fir (*Stebbing*).

Genus **ARNULPHUS.**

Arnulphus, *Dist. A. M. N. H.* (7) xiv, p. 220 (1904).

Type, *A. aterrimus*, Dist.

Distribution. Burma.

Elongate, subdepressed; head somewhat long and slender, longer than breadth including eyes; rostrum three-jointed, first and second joints incrassate, first short, second much the longest, third slender, about reaching the anterior coxæ; antennæ four-jointed, finely hirsute, first joint shortest, second, third, and fourth joints almost subequal in length; pronotum with a wide anterior collar, before which it is also medially constricted, anterior about half the breadth of posterior margin, which is strongly concavely sinuate; scutellum moderately gibbous at base; membrane with three (perhaps four) longitudinal veins; femora moderately incrassated; tarsi two-jointed; cuneus somewhat large and prominent.

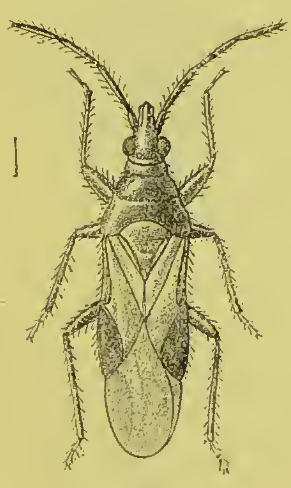

Fig. 2.
Arnulphus aterrimus.

1473. **Arnulphus aterrimus**, *Dist. A. M. N. H.* (7) xiv, p. 220 (1904).

Shining black; corium brownish-ochraceous, the cuneus black; legs, antennæ, and lateral margins

of corium finely hirsute; head, pronotum, and scutellum glabrous; apical area of scutellum transversely strigose; apices of the intermediate and posterior tibiæ and the tarsi stramineous; other structural characters as in generic diagnosis.

Length 4 millim.

Hab. Burma; Karennee.

Genus AMPHIAREUS.

Amphiareus, *Dist. A. M. N. H.* (7) xiv, p. 220 (1904).

Type, *A. fulvescens*, Walk.

Distribution. Ceylon; Burma.

Subelongate, setose; head anteriorly produced, columnar, about as long as breadth including eyes; rostrum three-jointed, first joint very short and thickened, second joint much the longest, third shorter, longer than first and reaching the anterior coxæ; antennæ four-jointed, setose, first joint short, moderately thickened, not reaching apex of head, second joint longest, moderately thickened, third and fourth joints short and slender, subequal in length; pronotum profoundly constricted near middle, anterior area glabrous, posterior area punctate, anterior margin about half the width of posterior margin, which is concavely sinuate; scutellum broad, transversely excavate at base; hemelytra longly pilose, the lateral margins slightly ampliately rounded; membrane apparently with three veins; legs slender; tarsi two-jointed.

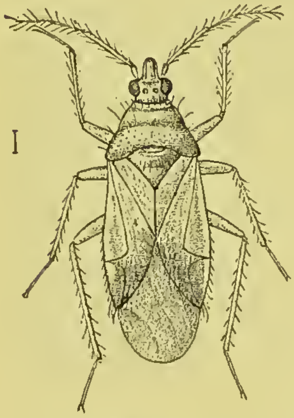

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Fig. 3.
Amphiareus fulvescens.

1474. **Amphiareus fulvescens**, *Walk.* (Xylocoris) *Cat. Het.* v, p. 160 (1872); *Leth. & Sev.* (Cardiastethus?) *Cat. Gén. Hém.* iii, p. 250 (1896).

Xylocoris fumipennis, *Walk. Cat. Het.* v, p. 160 (1872); *Leth. & Sev.* (Cardiastethus?) *Cat. Gén. Hém.* iii, p. 250 (1896).

Either pale stramineous, unicolorous, or with the head, pronotum, and apical area of the corium pale testaceous-brown; anterior area of the pronotum glabrous, posterior area punctate; membrane dull fuliginous-hyaline; hemelytra finely pilose, more strongly so on the apical areas; other structural characters as detailed in generic diagnosis.

Length $2\frac{1}{3}$ millim.

Hab. Ceylon (*Thwaites, Brit. Mus.*); Burma; Bhamo.

Genus LIPPOMANUS.

Lippomanus, *Dist. A. M. N. H.* (7) xiv, p 221 (1904).

Type, *L. hirsutus*, Dist.
Distribution. Burma.

Subelongate, depressed, hirsute; head about as long as breadth including eyes; rostrum three-jointed, reaching anterior coxæ, first joint not quite reaching base of head, second longest; antennæ hirsute, with the first joint not nearly reaching apex of head, second longest, third and fourth more slender; pronotum somewhat flat, with a transverse constriction near middle, the anterior only about one-third the width of posterior margin, which is strongly concavely sinuate; scutellum strongly constricted near middle; corium with the lateral margins somewhat strongly concavely sinuate on basal halves; membrane with four longitudinal veins; femora only moderately incrassate; legs hirsute or finely spinulose; tarsi two-jointed.

1475. **Lippomanus hirsutus**, *Dist. A. M. N. H.* (7) xiv, p. 221 (1904).

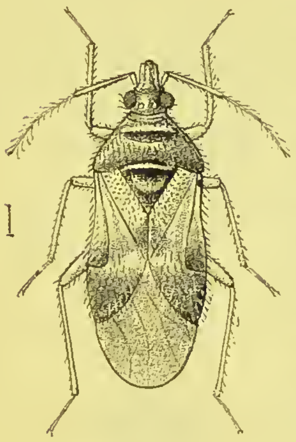
Fig. 4.
Lippomanus hirsutus.

Head, pronotum, and scutellum black; head in front of eyes piceous-brown; antennæ ochraceous, the first joint piceous; corium ochraceous, with an arched transverse medial fascia crossing apical area of clavus, and the apical area including cuneus, fuscous; membrane pale fuscous, the inner and apical margins paler; body beneath piceous, lateral margins of abdomen, the legs, and rostrum ochraceous; pronotum, scutellum, and clavus with scattered punctures; corium indistinctly and finely punctate; pronotum with a broad distinct ridge in front of the transverse impression; scutellum transversely ridged at base, foveately depressed on disk; cuneus ill-defined.

Length 3 millim.

Hab. Burma: Karennee (*Fea*); Tenasserim: Thagata (*Fea*).

Genus EUSPUDÆUS.

Euspudæus, *Reut. Act. Soc. Sci. Fenn.* xiv, pp. 559 & 565 (1885).

Type, *E. funebris*, Motsch.
Distribution. Ceylon.

Body depressed, oblong-ovate; head (collar excepted) with eyes

as broad as long; antennæ slender, first joint passing the apex of head, second joint linear and pilose, remaining joints in type mutilated; pronotum horizontal, anteriorly levigate, centrally longitudinally canaliculate, posteriorly with two large foveæ medially confluent, and with a very obsolete apical annuliform constriction situate between the angles, laterally and basally sinuate; hemelytra shining, coarsely punctate, cuneus levigate; membrane provided with four distinct subparallel veins; metasternum with a central medial carination; posterior coxæ subcontiguous.

1476. **Euspudæus funebris,** *Motsch.* (Anthocoris) *Bull. Soc. Mosc.* xxxvi (3) p. 88 (1863); *Reut.* (Espudæus) *Act. Soc. Sci. Fenn.* xiv, p. 566 (1885).

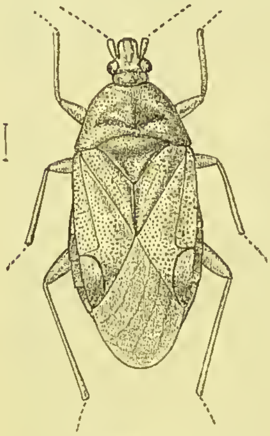

Fig. 5.
Euspudæus funebris.

Above black, beneath pitch-black; antennæ, rostrum, apex of head, and the legs piceous-testaceous; hemelytra greyish-stramineous, bases of corium and clavus, margins of scutellum, claval suture, and apex of cuneus broadly black; rostrum extending to the middle of the mesosternum, first joint extending to middle of eyes; antennæ with the second joint about three times longer than the first, its apex a little obscure; scutellum with the apical area depressed, transversely strigose, basal area levigate.

Length $4\frac{1}{4}$ millim.

Hab. Ceylon.

By the kindness of Dr. Yngve Sjöstedt, of the Stockholm Museum, I have been able to figure the specimen on which Dr. Reuter founded his genus.

Genus SESELLIUS.

Sesellius, *Dist. A. M N. H.* (7) xiv, p. 221 (1904).

Type, *S. parallelus*, Motsch.

Distribution. Ceylon.

Elongate, depressed; head a little longer than breadth between eyes; rostrum three-jointed, long, passing anterior coxæ; antennæ with the first joint considerably thickened and not reaching apex of head, a little longer than breadth between eyes, which are only subprominent; third antennal joint considerably shorter than second; pronotum depressed, with an obsolete narrow anterior collar, transversely excavate on disk, lateral margins moderately sinuate and narrowed anteriorly, posterior margin moderately concavely sinuate; hemelytra with their

margins parallel; membrane with a small basal cell and three veins; anterior and posterior femora very strongly incrassated, and spinulose on their under surface; tarsi three-jointed.

Owing to the specimen described being in a carded condition, the structure of the sternum cannot be ascertained.

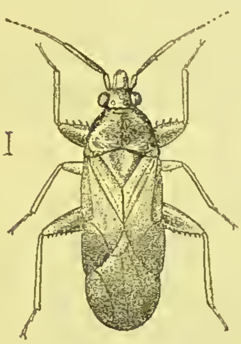

Fig. 6.
Sesellius parallelus.

1477. **Sesellius parallelus**, *Motsch.* (Anthocoris) *Bull. Soc. Mosc.* xxxvi (3) p. 89 (1863); *Reut. Act. Soc. Sci. Fenn.* xiv, p. 717.

Shining, piceous or piceous-black; rostrum, tibiæ, tarsi, and basal area of corium stramineous; membrane shining stramineous on basal, greenish-fuscous on posterior area; pronotum more or less transversely strigose, corium very finely and palely pilose; other structural characters as in generic diagnosis.

Length $2\frac{1}{2}$ millim.

Hab. Ceylon (*Lewis*).

Genus ODONTOBRACHYS.

Odontobrachys, *Fieb. Wien. ent. Monatschr.* iv, p. 264 (1860); *Eur. Hem.* p. 38 (1861).

Type, *O. niger*, Fieb.

Distribution. British India.

Wings provided with a hamus in the cell. Pronotum without an anterior constriction; rostrum short, reaching the mesosternum, apparently three-jointed, first joint occupying a third part of the length of head; antennæ thick, cylindrical; pronotum trapeziform, laterally curved; anterior femora broad, beneath medially provided with a small tooth, and between this and apex denticulate, posterior femora not anteriorly denticulate; hemelytra coriaceous; membrane apparently without veins; tarsi subclavate and apparently two-jointed.

Fig. 7.
Odontobrachys niger.

1478. **Odontobrachys niger**, *Fieb. Wien. ent. Monatschr.* iv, p. 270, pl. vi, fig. L (1860).

Piceous-black, shining; antennæ, anterior tibiæ, and all the tarsi flavous, posterior tibiæ piceous; abdomen beneath moderately punctate; hemelytra flavo-fuscous, margins blackish-

fuscous; membrane fusco-flavous; rostrum flavous, first joint and base of second joint fuscous.

Length $2\frac{1}{2}$ millim.

Hab. "India."

By the kindness of M. Joanny Martin, Fieber's type is here figured.

Genus TRIPHLEPS.

Triphleps, *Fieb. Wien. ent. Monatschr.* iv, p. 266, pl. vi, fig. P (1860); *id. Eur. Hem.* pp. 39 & 140 (1861); *Reut. Act. Soc. Sci. Fenn.* xiv, pp. 611 & 643 (1885).

Type, *T. lævigatus*, Fieb., a Palæarctic species.

Distribution. Apparently almost universal.

Body ovate or oblongly ovate, somewhat shortly and slightly pubescent; pronotum without or with a very obsolete anterior constriction or collar; rostrum not passing the anterior coxæ; metasternum between coxæ broadly rounded; membrane with three veins; antennæ short, second joint not longer than breadth of head between eyes.

1479. **Triphleps tantilus**, *Motsch.* (Anthocoris) *Bull. Soc. Mosc.* xxxvi (3) p. 89 (1863); *Reut. Act. Soc. Sci. Fenn.* xiv, p. 718 (1885).

Triphleps indicus, *Reut. Act. Soc. Sci. Fenn.* xiv, pp. 645 & 655 (1885).

Piceous-black; corium and legs stramineous; antennæ stramineous, basal joint usually more or less stramineous; cuneus and inner angle of corium sometimes very palely fuscous; membrane pale subhyaline; abdomen beneath brownish-testaceous; head between eyes slightly broader than long; first joint of antennæ not reaching apex of head, second joint not longer than breadth between eyes; pronotum punctate, granulately punctate on posterior area, with a very obsolete narrow collar at anterior margin, which is less than one-half the breadth of posterior margin, which is strongly concavely sinuate; apical area of scutellum transversely strigose; corium coarsely punctate, the cuneus almost levigate; rostrum reaching the anterior coxæ.

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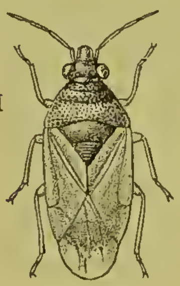

Fig. 8.
Triphleps tantilus.

Length $1\frac{3}{4}$ to 2 millim.

Hab. Bengal (*Copenhagen Mus.*). Ceylon; Pundaluoya (*Green*).

Dr. Meinert very kindly forwarded me the type of Reuter's species for comparison.

Subfamily II. MICROPHYSINÆ.

Microphysina, *Reut. Act. Soc. Sci. Fenn.* xiv, pp. 658 & 723 (1885).

I recognize this subfamily by the characters of a four-jointed rostrum and two-jointed tarsi.

One genus alone can now be enumerated, and that with some hesitation, as the condition of the type of *Pachytarsus*, Fieb., kindly forwarded to me from the Paris Museum for examination, was somewhat imperfect in respect to the characters relied on for the subfamily.

Genus PACHYTARSUS.

Pachytarsus, *Fieb. Wien. ent. Monatschr.* iv, p. 262 (1860); *id. Eur. Hem.* p. 37 (1861); *Reut. Act. Soc. Sci. Fenn.* xiv, p. 757 (1885).

Type, *P. crassicornis*, Fieb.

Distribution. British India.

Wings provided with a hamus in the cell. Pronotum with an anterior annuliform transverse stricture; tarsi robust, short; rostrum reaching the apex of the prosternum, four-jointed, first joint short; antennæ with the third and fourth joints distinctly thickened; mesosternum convex, anteriorly between coxæ acutely prolonged, posteriorly narrowed, rounded and impressed, nearly bilobate; metasternum nearly semilunar, margin convex; embolium narrow; membrane with three veins equally distant from one another; tarsi apparently two-jointed, but type specimens not in sufficiently good condition for exact determination.

1480. **Pachytarsus crassicornis**, *Fieb. Wien. ent. Monatschr.* iv. p. 269, pl. vi, fig. E (1860).

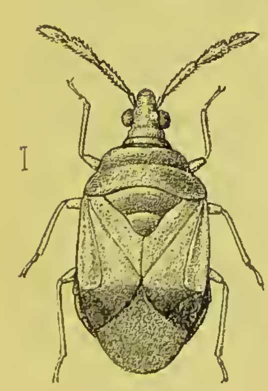

Fig. 9.
Pachytarsus crassicornis.

Piceous-black; hemelytra sordidy flavous, behind embolium to interior angle of corium fuscous; membrane unicolorous, fusco-fuliginous; antennæ piceous, moderately setose, apex of last joint whitish; rostrum fuscous, apex of second joint and the whole of third joint flavescent; femora and tibiæ fuscous; tarsi sometimes, apices of anterior femora and the anterior tibiæ flavous.

Length $2\frac{1}{3}$ millim.

Hab. "India orientalis."

I am greatly indebted to M. Joanny Martin, of the Paris Museum, for the opportunity of figuring the type of this species.

Genus CYRTOSTERNUM.

Cyrtosternum, *Fieb. Wien. ent. Monatschr.* iv, p. 265 (1860) ; *id. Eur. Hem.* p. 39 (1861).

Type, *C. flavicorne*, Fieb.

Distribution. Oriental Region.

Mesopectus arched posteriorly and sloping off, deeply indented behind ; metapectus short, broad, heart-shaped ; arched with a marginal ridge ; pronotum broadly trapeziform, broadly concave behind, lateral margin sharpened and depressed, in front somewhat widened ; membrane with three nervures ; head beneath arched. (*Fieb.*)

1481. **Cyrtosternum flavicorne**, *Fieb. Wien. ent. Monatschr.* p. 270, pl. vi, fig. O (1860).

Pitchy brown, antennæ, tibiæ, and joints of the tarsi yellowish ; femora brown, base and apex yellowish ; corium dirty yellow ; embolium and triangle of the cuneus brown ; membrane brownish-yellow. (*Fieb.*)

Length " $\frac{3}{4}$ line."

Hab. India.

This genus and species are only known to me by the above short descriptions, and the proper location is therefore quite enigmatical. Mons. Joanny Martin, of the Paris Museum, informs me that the type is no longer to be found in that collection, and it is therefore perhaps better to regard it as lost.

Family POLYCTENIDÆ.

Polyctenidæ, *Westw. Thesaur. Entom.* p. 197 (1874).

The taxonomic position of this small family is almost still *sub judice.* It is founded on the genus *Polyctenes* (Westw. & Giglioli, Quart. Journ. Microsc. Sc. iv, p. 25, 1864), which was placed in the Dipterous family Nycteribiidæ. Westwood subsequently, in founding a family for its reception *supra*, regarded it as representing aberrant Anoplura or Lice. Waterhouse (Trans. Ent. Soc. 1879, p. 309) considered its affinities to be with the Dipterous family Hippoboscidæ, but subsequently (Trans. Ent. Soc. 1880, p. 320) agreed with Westwood as to its inclusion with the Rhynchota. Sharp (Camb. Nat. Hist. vi, p. 561, 1899) considers that "there does not appear any sufficient grounds for removing these parasites from Hemiptera-Heteroptera"—a view in which I concur, and have placed the Polyctenidæ at the end of the genera composing the Gymnocerata. Mr. Champion, however, has not included a Guatemalan specimen described by Waterhouse in his enumeration of the Heteroptera of Central America.

These insects are parasitic on Bats. Westwood's diagnosis has been abbreviated by Sharp as follows :—

"Proboscis-sheath three-jointed, tarsi four-jointed, antennæ four-jointed. Tegmina quite short, of one consistence."

The species have been recorded from both the Eastern and Western Hemispheres.

Genus POLYCTENES.

Polyctenes, *Westw. & Giglioli, Quart. Journ. Microsc. Sc.* iv, p. 25 (1864); *Westw. Thesaur. Entom.* p. 198 (1874).

Type, *P. molossus*, Westw. & Giglioli, found on a Chinese species of Bat.

Distribution. Found in both the Eastern and Western Tropics but present knowledge very slight and imperfect.

Antennæ four-jointed, a little longer than the head, first joint incrassated, angulated above near base and provided with long setæ, its apical area setose, the second, third, and fourth joints decreasing in length, the third joint beyond base outwardly provided with long setæ; rostrum shorter than head, three-jointed, first joint a little dilated at base; tarsi at apices sometimes provided with a spinulose pulvillus.

1482. **Polyctenes lyræ**, *Waterh. Tr. E. S.* 1879, p. 311, t. ix, ff. 1 & 2.

"Uniform pale pitchy-yellow. The anterior portion of the head smooth and shining, with three or four stiff bristles on the margin

near the posterior angles. The antennæ apparently with two small joints at the base, the third joint very long, compressed, concave, or channelled on the inner side, the fourth joint about two-thirds the length of the third and more slender, the fifth joint elongate, fusiform. The anterior portion of the head below with five or six cultriform spines placed obliquely near the posterior angles. The posterior portion of the head above smooth and

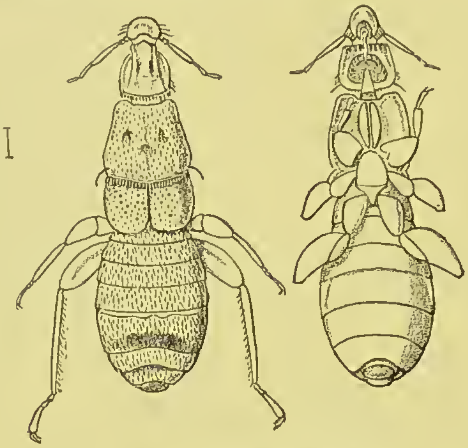

Fig. 10.—*Polyctenes lyræ.*

shining, with a ridge on each side of the disk; the ridge which margins the sides anteriorly turns away posteriorly for the hind angles, and is set with stiff bristles which increase in length as they approach the hind angles; the basal margin is closely set with short cultriform spines. This portion of the head is concave below, with the anterior margin set with cultriform spines, the sides with stiff bristles which become longer posteriorly; at the posterior angle there is a conical process which terminates in a very long stiff bristle. The prothorax above has short stiff hairs scattered over the surface, the basal margin has a row of cultriform spines which are pitchy in colour. The dorsal plates of the mesothorax are studded with minute hair-bearing tubercles. The abdomen is sculptured in the same manner. The prothorax is concave below on each side, so that the anterior legs are entirely hidden in the cavity when retracted; the prosternum is elongate-ovate, with a mesial impressed line."

Length 3·5 millim.

Hab. Madras Presidency; Secunderabad.

This species was found on a Bat forwarded to the British Museum from the above locality. I have thought it better to reproduce Mr. Waterhouse's minute description. Mr. Knight has made original drawings from the type.

Family PELOGONIDÆ.

Pelogonida, *Stål, Hem. Afr.* iii, p. 170 (1865).
Mononychida, *Stål, tom. cit.* p. 171.
Galgulidæ, *Stål, En. Hem.* v, p. 137 (1876)*.
Pelegonidæ, *ante*, vol. i, p. xxxvii.

Body short and broad; head very broad, with prominent eyes; ocelli present; posterior legs thin, and formed for running.

Synopsis of Subfamilies.

A. Body oval; rostrum long and slender; anterior legs normal .... *Pelogoninæ.*
B. Body broadly ovate; rostrum short; anterior legs raptorial.......................... *Mononychinæ.*

Subfamily I. PELOGONINÆ.

Body oval; head prominently depressed anteriorly; eyes reniform; rostrum long, slender, somewhat incrassate at base.

Genus PELOGONUS.

Ochtherus, *Latr. Gen. Crust. Ins.* iii, p. 142 (1807).
Ochthera, *Bergr. Bull. Soc. Ent. Fr.* 1890, p. lxvi †.
Pelogonus, *Latr. tom. cit.* iv, p. 384 (1809); *Burm. Handb.* ii, 1, p. 202 (1835); *Fieb. Gen. Hydroc.* p. 14, t. 1 *c* (1851); *Herr.-Sch. Wanz. Ins.* ix, p. 23, t. 290, ff. A–F (1853); *Stål, Hem. Afr.* iii, p. 170 (1865); *Champ. Biol. Centr.-Amer., Rhyn.* ii, p. 344 (1900).

Type, *P. marginatus*, Latr.
Distribution. Probably distributed in all the larger zoogeographical regions.

Body moderately depressed; head, including eyes, a little narrower than the anterior margin of the pronotum and anteriorly truncately deflected; rostrum reaching the posterior coxæ; antennæ short, four-jointed, inserted beneath the eyes; pronotum transverse, sexangular, the lateral margins laminately ampliated and moderately rounded, its basal margin before scutellum concavely sinuate; scutellum broad, triangular; hemelytra totally covering the abdomen; legs moderate in length and slender.

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* The generic name *Galgulus*, on which this family name is constructed, is preoccupied, and therefore *Pelogonus*, being the oldest remaining genus, must be used in the formation of the family name.

† Dr. Bergroth, in seeking to revive the name *Ochthera*, states that *Ochtherus* is only preoccupied; whereas (*cf.* Bull. Soc. Ent. Fr. 1890, p. cxix) it has been pointed out that the reverse is the case, *Ochthera* having been used for Diptera (1802). Latreille himself very rightly sank the names to prevent confusion, and the genus is properly known as *Pelogonus*.

Champion, who has examined many specimens of Central-American species, states :—" The males have the seventh ventral segment split down the middle, leaving the terminal genital segment exposed, and they are very apt to be mistaken for the opposite sex."

1483. **Pelogonus marginatus**, *Latr.* (Acanthia) *Hist. Ins.* xii. p. 242 (1804); *id.* (Ochtherus) *Gen. Ins.* iii, p. 143 (1807); *Amy. & Serv.* (Pelogonus) *Hém.* p. 409 (1843); *Fieb. Eur. Hem.* p. 103 (1861); *Stål, Hem. Afr.* iii, p. 170 (1865); *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 365 (1897).
Pelogonus caffer, *Stål, Öfv. Vet.-Ak. Förh.* 1855, p. 46.
Pelogonus indicus, *Guér. Rev. Zool.* 1843, p. 113.

Fig. 11.
Pelogonus marginatus.

Piceous-black; apical margin of head, basal two joints of antennæ, lateral and posterior margins of pronotum (the last variable in width), lateral spots to corium (of which the basal is elongate and the others transverse, sometimes obsolete), anterior margins of the anterior acetabula, legs, and sometimes small marginal spots to abdomen beneath, stramineous or ochraceous.

Length 4 to 6; breadth $2\frac{3}{4}$ to $3\frac{1}{2}$ millim.

Hab. India (*fide Guérin*). Burma; Karennee (*Fea*).—Cochin-China (*Coll. Distant*). South Africa. Central Europe.

The specimen figured is a variety from Burma, collected by Fea and enumerated by Montandon.

Subfamily II. MONONYCHINÆ.

Mononychinæ, *Montand Bull. Soc. Sci. Bucarest*, viii, p. 392 (1899).

Body broadly ovate; head vertical, triangular; eyes subreniform; rostrum short, four-jointed; anterior legs raptorial, their femora incrassate; tarsi heteromerous, anterior tarsi single-jointed, posterior tarsi with two joints.

Genus MONONYX.

Mononyx, *Lap. Ess. Hém.* p. 16 (1832); *Amy. & Serv. Hém.* p. 425 (1843); *Fieb. Gen. Hydr.* p. 12 (1851); *Stål, Hem. Afr.* iii. p. 171 (1865); *id. En. Hem.* v, p. 138 (1876); *Montand. Bull. Soc. Sci. Bucarest*, viii, p. 394 (1899).

Type, *M. raptorius*, Fabr., a Neotropical species.
Distribution. Neotropical, Australasian, and Oriental Regions.

Hemelytra provided with a distinctly developed membrane; pronotum at base before scutellum distinctly concavely sinuate, its posterior angles rounded or obtuse; mesosternum posteriorly and the metasternum elevated, compressed, the elevation a little acuminate; lateral margins of the hemelytra not sinuate and not completely covering the abdomen.

1484. **Mononyx serratus,** *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 365 (1897); *id. Bull. Soc. Sci. Bucarest,* viii, p. 396 (1899).

Fuscous-brown; lateral margins of the pronotum, femora (excluding apices), and a spot at base of anal segment ochraceous; head strongly tuberculous, with three robust dentiform tubercles on anterior margin; pronotum with the disk gibbous, transversely impressed behind middle, and with fine longitudinal carinations, the lateral margins much depressed and ampliated, their margins subconvex, carinate and obtusely dentate; scutellum with a distinct discal semicircular ridge, its apex somewhat tuberculous; corium finely granulose, with a few scattered tubercles; connexivum segmentally sinuate and subdentate.

Fig. 12.
Mononyx serratus.

Length 8 to 9; breadth between pronotal angles 6 to 7 millim.

Hab. Burma; Karennee (*Fea*).

Montandon's type, by the courtesy of Dr. Gestro, is here figured.

1485. **Mononyx indicus,** *Atkins. J. A. S. B.* 1888, p. 345; *Montand. Bull. Soc. Sci. Bucarest,* viii, p. 397 (1899).

Brownish-ochraceous tinged with greyish; head and pronotum irregularly tuberculate; lateral margins of the pronotum somewhat roundly dilated, the margins obsoletely broadly crenulate; scutellum subconvex, with a somewhat large tubercle at each basal angle and at the apex; corium finely granulose and with some small scattered tubercles; membrane concolorous; connexivum with the posterior segmental angles slightly prominent, and, as described by Atkinson, sometimes black; coxæ and femora yellow-testaceous, tibiæ and tarsi darker in hue, apices of the femora and tibiæ piceous.

Length 9 to 10; breadth between pronotal angles 7 millim.

Hab. Sikhim.

An abundant species.

1486. **Mononyx grossus,** *Montand. Bull. Soc. Sci. Bucarest,* viii, p. 398 (1899).

Fuscous-brown, lateral margins of the pronotum and exposed connexivum testaceous-brown; lateral margins of the pronotum ampliately dilated, somewhat rounded, its angles subconvex and projecting beyond the base of the corium, a strong transverse impression near base, two longitudinal ridges connected with an anterior transverse ridge, and two small foveations on disk; two discal tuberculous callosities between eyes; scutellum a little raised, granulose, with a longitudinal foveation on each lateral area; corium distinctly convexly ampliated near base, after which it is obliquely and almost straightly narrowed to apex, finely granulose along the veins.

This species may be at once recognized and differentiated from the two previously described by its greater width, the ampliated margins of the pronotum, the convexly ampliated basal margins of the corium, different discal structure of the pronotum, &c.

Length 11 to 12; greatest breadth 8 to $8\frac{1}{2}$ millim.

Hab. Assam; Noa Dihing (*Chennell*).—Tibet; Mou-pin (*A. David*).

Family NEPIDÆ.

Nepida, *Stål, Hem. Afr.* iii, p. 185 (1865).

Body oblong or elongate; head small, moderately prominently produced before eyes; rostrum short, three-jointed; antennæ short, three-jointed, inserted under the eyes; hemelytra more or less complete; abdomen with apical long filiform appendages; legs sometimes very long, anterior legs raptorial; tarsi consisting of a single joint.

The Nepidæ are widely and generally distributed, and are popularly known as "water-scorpions."

Synopsis of Genera.

A. Body oblong, or elongately subovate; pronotum about as long or a little shorter than broad, its anterior margin about twice as broad as head .... LACCOTREPHES, p. 17.

B. Body very long and narrow; pronotum slender, very much longer than broad; head, including eyes, broader than anterior pronotal margin.

  a. Anterior femora about as long as pronotum; coxæ very long .... RANATRA, p. 19.

  b. Anterior femora considerably shorter than pronotum; coxæ somewhat short ...... CERCOTMETUS, p. 23.

Genus LACCOTREPHES.

Laccotrephes, *Stål, Hem. Afr.* iii, p. 186 (1865); *id. Hem. Fabr.* i, p. 134 (1868).

Nepa (part.), *Ferrari, Ann. Hofmus. Wien,* iii, pp. 162 & 163 (1888).

Type, *L. fabricii*, Stål, an Ethiopian species.

Distribution. Ethiopian, Oriental, and Australasian Regions. Also found in China and Japan.

Body oblong or elongately subovate; pronotum about as long as broad, sometimes a little shorter than broad, a little sinuately narrowed anteriorly, where it is about twice as broad as head and behind which it is profoundly concavely sinuate, its base in front of scutellum also strongly concavely sinuate, transversely constricted behind middle, between which and anterior margin are two discal longitudinal rugosities; scutellum slightly longer than broad; membrane complete, reticulately veined; legs of moderate length, anterior femora incrassate and beneath longitudinally sulcate, the anterior tibiæ a little shorter than the femora.

The species of this genus appear to have a wide distribution, and

are subject to considerable variation in colour and minor structural characters. Ferrari subjected the genus to a rigorous revision, and proposed the recognition of many distinct species, which I at least, and Montandon also, have been unable to differentiate. Considerable value has been placed on the abdominal appendages for the differentiation of species, but these are of a very fragile character and seldom complete in Museum specimens. A good superficial differential character appears to exist in the colour of the upper surface of the abdomen, and this taken in a broad and not too narrow sense is undeniably helpful.

With a considerable number of specimens passing through my hands, including Montandon's cotypes and identified species, I cannot recognize more than three species as found in British India. Their size, combined with the colour of the abdomen above, apart from other structural characters, renders their separation a matter of little difficulty.

1487. **Laccotrephes robustus**, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 706; *Ferrari* (Nepa), *Ann. Hofmus. Wien,* iii, p. 182 (1888); *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 376 (1897).

Var. pfeiferiæ, *Ferrari* (Nepa), *Ann. Hofmus. Wien,* iii, p. 187 (1888); *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 376 (1897).

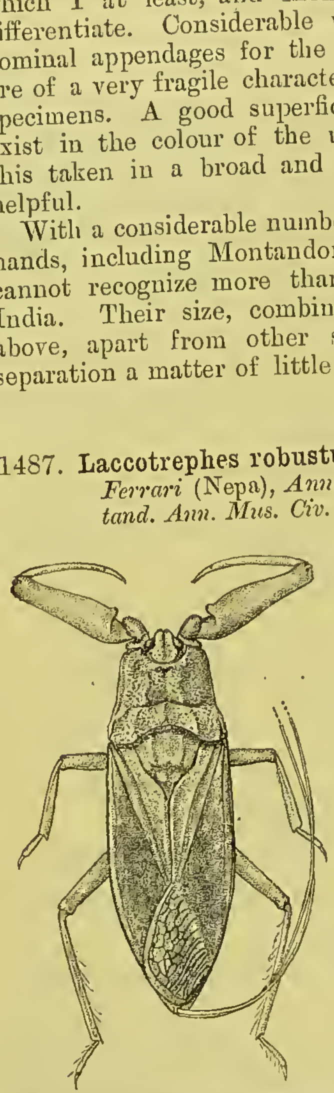

Fig. 13.—*Laccotrephes robustus.*

Fuscous or piceous; abdomen above sanguineous or subsanguineous, its apex fuscous; femora very obscurely palely annulate; wings vitreous, with a slightly bluish tinge; abdominal appendages about equal in length to, or a little longer than, the body; hemelytra subparallel.

Length 36 to 44; breadth between post. pronotal angles 12 to 12½ millim.

Hab. Nága Hills (*Chennell*). Burma; Karennee (*Fea*).—Siamese Malay States (*Skeat Exped.*). Perak (*coll. Dist.*). Philippines (*Semper*).

1488. **Laccotrephes ruber**, *Linn.* (Nepa) *Mus. Lud. Ulr.* p. 165. 2 (1764); *Mayr, Reise Nov., Hem.* p. 188 (1866); *Stål* (Laccotrephes), *Hem. Fabr.* i, p. 135 (1868); *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 376 (1897).

Nepa grossa, *Fabr. Ent. Syst.* iv, p. 62. 5 (1794); *Ferrari, Ann. Hofmus. Wien,* iii, p. 177 (1888).

Nepa flavovenosa, *Dohrn, Stett. ent. Zeit.* xxi, p. 409 (1860);

Ferrari, *Ann. Hofmus. Wien*, iii, p. 184 (1888); *Dist.* (Laccotrephes) *A. M. N. H.* (7) xiv, p. 63 (1904).

Laccotrephes japonensis, *Scott*, *A. M. N. H.* (4) xiv, p. 450 (1874); *Ferrari* (Nepa), *Ann. Hofmus. Wien*, iii, p. 175 (1888).

Nepa eusoma, kohlii, dentata, *Ferrari*, *Ann. Hofmus. Wien*, iii, pp. 179, 180, 183 (1888).

? Nepa dubia, *Ferrari*, *Ann. Hofmus. Wien*, iii, p. 181 (1888).

A smaller and narrower species than *L. robustus*, in colour generally fuscous, sometimes piceous; abdomen above reddish-ochraceous, usually with a central longitudinal fuliginous fascia, the apex brownish-ochraceous, sometimes, but rarely, with the whole disk suffused with fuliginous; wings vitreous; abdominal appendages a little longer than the body; hemelytra subparallel.

Length 30 to 35; breadth between post. pronotal angles 7 to 9 millim.

Hab. Sind (*Vienna Mus.*). Kashmir (*Hügel*). Nága Hills (*Doherty*). N. Khási Hills (*Chennell*). Kangra Valley (*Dudgeon*). Bombay (*Dixon*). Calcutta. Ceylon (*Lewis*). Burma; Bhamo (*Fea*).—China (*Vienna Mus.*). Formosa (*Brit. Mus.*). Japan (*Lewis*).

1489. **Laccotrephes maculatus**, *Fabr.* (Nepa) *Syst. Ent.* p. 692, 5 (1775); *Stål* (Laccotrephes), *Hem. Fabr.* i, p. 135 (1868); *Ferrari* (Nepa), *Ann. Hofmus. Wien*, iii, p. 187 (1888); *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 377 (1897).

Nepa griseus, *Guér. Iconogr. Règne Anim.*, *Ins.* p. 352, pl. lvii, fig. 7 (1829-1838); *Ferrari*, *Ann. Hofmus. Wien*, iii. p. 185 (1888); *Montand.* (Laccotrephes) *Ann. Mus. Civ. Gen.* xxxvii, p. 377 (1897).

Fuscous or griseous, pubescent; abdomen above fuscous or fuscous-brown, its apex paler, somewhat griseous; femora (except in griseous varieties) with obscure fuscous shadings; wings vitreous, with a distinct bluish tinge; abdominal appendages a little longer than the body; hemelytra slightly ampliated.

Length 15 to 20; breadth between post. pronotal angles 4½ to 5 millim.

Hab. Bengal (*Vienna Mus.*). Assam (*Chennell*). Calcutta Tanks (*Ind. Mus.*). Bombay (*Leith & Dixon*). Ceylon; Colombo (*Lewis*). Burma; Teinzo, Karennee (*Fea*).—Borneo (*Vienna Mus.*).

Genus **RANATRA.**

Ranatra, *Fabr. Syst. Rhyng.* p. 108 (1803); *Stål*, *Hem. Afr.* iii, p. 189 (1865); *Mayr*, *Reise Nov.*, *Hem.* p. 189 (1866).

Type, *R. filiformis*, Fabr.

Distribution. Almost universal.

Body very long and narrow; head including eyes broader than anterior margin of pronotum; eyes very prominent; pronotum

elongate, the posterior area widened and elevated, its base profoundly sinuate; hemelytra complete, membrane reticulately veined; legs slender, anterior legs a little incrassate; anterior coxæ long, longly extended beyond the apex of the head; anterior femora beyond middle armed with one or two spines, and more than twice as long as the tibiæ; abdominal appendages usually ong.

De la Torre Bueno (Canad. Entomol. xxxv, pp. 235–237) has recorded the stridulating properties of an American species of this genus (*R. quadridentata*, Stål), and states that the sound is produced by both adults and nymphs.

1490. **Ranatra elongata**, *Fabr. Skrivt. af Naturh. Selsk.* I, i, p. 228. 2 (1790); *id. Ent. Syst.* iv, p. 65. 3 (1794); *Mayr, Reise Nov., Hem.* p. 191, tab. v. fig. 58 (1866); *Stål, Hem. Fabr.* i, p. 136 (1868).

Griseous; anterior area of the pronotum and head very palely castaneous; posterior area of sternum, abdomen, and legs ochraceous; posterior tibiæ and tarsi infuscate; anterior area of

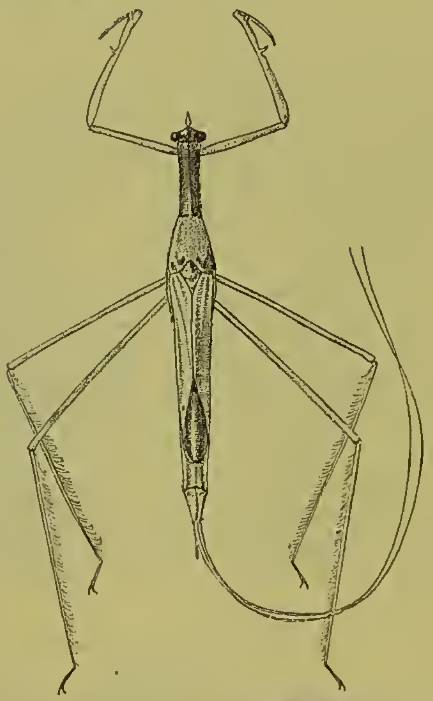

Fig. 14.—*Ranatra elongata.*

pronotum with an obscure fuscous central linear fascia; abdomen above fuscous, its lateral margins pale ochraceous; metasternum with a subtriangular process which is centrally longitudinally foveately sulcate; abdominal appendages longer than the body.

Length excl. abdom. append. 41 to 45; length abdom. append. about 47 millim.

Hab. Kashmir (*Vienna Mus.*). Calcutta (*Ind. Mus.*). Bombay (*Leith & Dixon*). Nilgiri Hills (*Hampson*).

1491. **Ranatra chinensis**, *Mayr, Verh. z.-b. Ges. Wien*, xv, p. 446 (1865); *id. Reise Nov., Hem.* p. 191, tab. v, fig. 59 (1866); *Kirk. & Montand. Entomologist*, 1901, p. 51; *Montand. Bull. Soc. Sci. Bucarest*, xii, p. 102 (1903).
Ranatra valida, *Stål, Hem. Fabr.* i, p. 136 (1868).
Ranatra pallidenotata, *Scott, A. M. N. H.* (4) xiv, p. 451 (1874).

Allied to *R. elongata*, but darker in hue; hemelytra and posterior tibiæ and tarsi fuscous; abdomen above black, connexivum ochraceous; anterior area of pronotum broader and shorter; metasternum with a subtriangular process, not foveately sulcate as in *R. elongata*, but with a distinct central linear carinate elevation.

Length body excl. abdom. append. 39 to 46; length abdom. append. about 43 millim.

Hab. Burma; Karennee (*Fea, fide Montandon*). China. Japan (*Lewis*).

1492. **Ranatra feana**, *Montand. Bull. Soc. Ent. Ital.* xxxv, p. 23 (1903).

Body robust, yellowish brown, brilliant, much paler beneath; hemelytra blackish on the lateral margins, yellow on the disk, the apex of the membrane not extending quite to the apex of the fifth abdominal segment; abdominal appendages longer than the body.

This species—which I have not seen—is described by Montandon as differing from *R. elongata* in the more robust shape, the eyes proportionally less developed, the hemelytra a little longer, the femora posteriorly more robust, the metasternal process very elevated on a median line and not in form of a plate as in the Fabrician species, and the anterior femora not toothed near their apices. From *R. chinensis* it differs by the shorter hemelytra, which in Mayr's species cover the base of the sixth abdominal segment, the dentation of the anterior femora is also different.

Length excl. abdom. append. 46; length abdom. append. 56 millim.

Hab. Burma; Mandalay (*Fea*).

1493. **Ranatra filiformis**, *Fabr. Skrivt. af Naturh. Selsk.* I. i, p. 228. 3 (1790); *id. Ent. Syst.* iv, p. 64. 1 (1794); *Stål, Hem. Fabr.* i, p. 135 (1868).

Dull obscure brownish-ochraceous; head and anterior area of pronotum pale castaneous; posterior area of sternum, legs, and

abdominal appendages pale ochraceous; abdomen above pale ochraceous with a central longitudinal fuscous linear fascia; metasternal process a little convex posteriorly, produced towards the posterior coxæ; posterior pronotal angles with an inner incision which makes them rather longitudinally prominent; eyes very prominent; intermediate and posterior legs obscurely fuscously annulated, anterior legs a little less prominently annulate.

Length excl. abdom. append. 27; length abdom. append. about 23 millim.

Hab. Quetta, Karachi, Behar, Sibsagar (*Brit. Mus.*). Tranquebar (*Copenhagen Mus.*). Bombay (*Dixon*).—Johore. Philippines.

1494. **Ranatra sordidula**, *Dohrn, Stett. ent. Zeit.* xxi, p. 409 (1860).

Fuscous; posterior areas of pronotum and sternum, abdomen beneath, anterior legs, and intermediate and posterior femora dull ochraceous; abdomen above ochraceous-brown, more or less centrally longitudinally fuscous; metasternal process ovate, a little foveate, with a central longitudinal carinate line; other characters generally as in *R. filiformis*, from which it is at once separated by the different structure of the metasternal process, darker coloration, and different colour of the legs and upper surface of the abdomen.

Length excl. abdom. append. 22 to 24; length abdom. append. about 20 millim.

Hab. Calcutta Tanks (*Ind. Mus.*). Ceylon (*Green*); Colombo (*Lewis*).—Penang. Siam (*Flower*).

1495. **Ranatra gracilis**, *Dall. Tr. E. S.* 1849, p. 10.

"Linear-elongate, ferruginous brown, obscure; head with an acute tubercle between the eyes; scutellum with two small pits on the disk towards the apex; elytra reaching beyond the base of the apical segment of the abdomen; caudal setæ short, rather longer than the head and thorax together, slender, very slightly pilose externally; abdomen beneath keeled, the keel not continued beyond the base of the posterior legs; prosternum with two longitudinal furrows; legs very long and slender, subpilose; anterior thighs with six very faint teeth beneath at the base; the four posterior tibiæ and tarsi simple." (*Dallas.*)

Length excl. abdom. append. 34 millim.

Hab. Bhutan.

M. Montandon (Bull. Soc. Sci. Bucarest, xii, p. 110) considers that this species may be identical with, and take priority of, *R. parmata*, Mayr, Reise Nov., Hem. p. 192, tab. v, fig. 60, *a*, *b* (1866), which was described from Java. *R. gracilis* may be at once distinguished from any of the preceding species here enumerated by the shortness of the abdominal appendages, which are only about the length of the head and pronotum together. I have not seen the species.

Genus CERCOTMETUS.

Cercotmetus, *Amy. & Serv. Hém.* p. 441 (1843); *Stål, Hem. Afr.* iii, p. 186 (1865); *Montand. Bull. Soc. Sci. Bucarest*, xii, p. 107 (1903).

Type, *C. asiaticus*, Amy. & Serv., from Java.

Distribution. Oriental and Malayan Regions.

This genus differs from *Ranatra* by the shorter coxæ, and by the length of the anterior femora, which in *Cercotmetus* are considerably shorter than the pronotum; the abdominal appendages are short, but this is a character found in some species of *Ranatra*, as, for example, *R. gracilis*, Dall.

1496. **Cercotmetus fumosus**, *Dist. Entomologist*, 1904, p. 278.

Uniformly somewhat dark fuscous; head with a pointed tubercle between the eyes; hemelytra not reaching the apex of the fifth abdominal segment, the coriaceous portion with some amount of brownish-ochraceous pubescence; abdominal appendages mutilated in type; abdomen beneath strongly keeled, the keel continued on sternum as far as anterior coxæ; prosternum with two long deep furrows; intermediate and posterior tibiæ and tarsi inwardly moderately but prominently pilose; pronotum as long as intermediate femora.

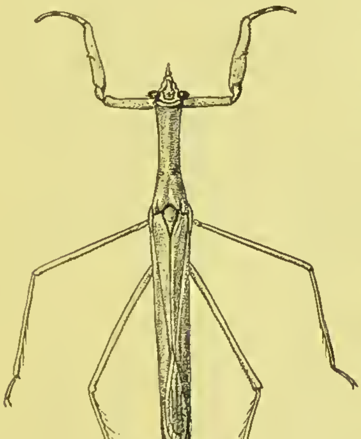
Fig. 15.—*Cercotmetus fumosus.*

By the last character this species is to be distinguished from *C. asiaticus*, in which the intermediate femora are longer than the pronotum; from *C. pilipes*, Dall., it is separated by the much less longly pilose inner margins of the intermediate and posterior tibiæ and the darker colour; the central carination of the body beneath only reaches the anterior margin of the metasternum, which also separates it from *C. compositus*, Montand.

Length excl. abdom. append. 47 millim.

Hab. Ceylon (*Green, Brit. Mus.*).

1497. **Cercotmetus pilipes**, *Dall.* (Ranatra (Cercotmetus)) *Tr. E. S.* 1849, p. 2, pl. ii, fig. 6; *Montand. Bull. Soc. Sci. Bucarest*, xii, p. 110 (1903).

"Linear-elongate, yellowish-brown, opaque; head small, with a

tubercle on the vertex between the eyes; elytra not reaching the apex of the penultimate segment of the abdomen, with the coriaceous portion covered with very small hairy tubercles; caudal setæ very short, not more than one-fourth the length of the body, broad, compressed, and strongly pilose externally; abdomen beneath strongly keeled, the keel continued upwards along the sternum, disappearing about the centre of the mesosternum; prosternum with two long deep longitudinal furrows extending its whole length; legs somewhat robust and pilose; anterior thighs and tibiæ very short; intermediate and posterior tibiæ and tarsi furnished on the inner side with a double row of long yellow hairs." (*Dallas.*)

Length excl. abdom. append. 41; length abdom. append. 9 millim.

Hab. Bhutan.

I have not seen this species, which is apparently distinct from any other yet described by the border of long yellow hairs to the intermediate and posterior tibiæ and tarsi.

Family NAUCORIDÆ.

Naucoridæ, *Fieb. Eur. Hem.* p. 32 (1861); *Stål, En. Hem.* v, p. 141 (1876).
Aphelochiræ, *Fieb. Eur. Hem.* p. 32 (1861).

We have already (*ante.* vol. i, p. xxxvii) given the salient characters of this family. The species are truly aquatic and swim freely both in fresh and stagnant water. None of them appear to carry their eggs on their back, a practice common to the following family Belostomatidæ.

Synopsis of Subfamilies.

A. Head more or less prominent and rounded in front of eyes, beneath with a profound excavation in which is inserted the base of rostrum.
  a. Pronotum anteriorly strongly concavely excavate or sinuate, its posterior angles more or less acuminate .... *Cheirochelinæ.*
B. Head broad, not prominently produced in front of eyes.
  b. Pronotum anteriorly either not, or obtusely or prominently broadly sinuate, its posterior angles not acuminate.
    a. Gula short, neither tumid nor tectiform .. *Laccocorinæ.*
    b. Gula long, tumid or tectiform .... *Naucorinæ.*

Subfamily I. CHEIROCHELINÆ.

Cheirochelinæ, *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 367 (1897).

Head more or less prominent and rounded in front of the eyes, beneath with a profound excavation in which is inserted the base of the rostrum; eyes longer than broad; pronotum strongly concavely sinuate at its anterior margin between the region of the eyes, the posterior lateral angles more or less acuminate; the anterior femora very strongly dilated.

Synopsis of Genera.

A. Pronotum with the lateral margins concavely narrowed anteriorly; greatest breadth of abdomen less than, or about equal to, its length .... CHEIROCHELA, p. 26.
B. Pronotum with the lateral margins convexly narrowed anteriorly; greatest breadth of abdomen considerably exceeding its length.. GESTROIELLA, p. 27.

Genus CHEIROCHELA.

Cheirochela, *Hope, Trans. Linn. Soc.* xviii, p. 442 (1841); *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 368 (1897).
Chirochela, *Fieb. Gen. Hydr.* p. 17 (1851).

Type, *C. assamensis*, Hope.

Distribution. Oriental Region.

Body depressed, elongate-ovate; head strongly and broadly produced in front of eyes, which are much longer than broad, beneath with a deep excavation containing the base of the rostrum, posteriorly convexly elongated at base between the eyes; pronotum transverse, its anterior margin concave before the basal prolongation of the head, its anterior lateral angles elongately and its posterior angles transversely acuminate; scutellum broad, subtriangular; hemelytra not covering the whole of the abdomen, corium completely rounded and hiding connexivum for about half its length and then obliquely attenuated; abdomen broad, depressed, the lateral posterior segmental angles more or less spinously produced; anterior femora very strongly dilated, anterior tibiæ and tarsi confluent and curved; intermediate and posterior tibiæ clothed beneath with long thick hairs.

1498. **Cheirochela feana,** *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 370 (1897).

Dark fuscous-brown; lateral and anterior margins of head, inner margins of eyes, lateral margins and posterior angles of pronotum, transverse subbasal fascia to scutellum, basal dilated margin of corium above and beneath, lateral margins and inner spots to connexivum, lateral margins of prosternum, intermediate and posterior femora, and bases of intermediate and posterior tibiæ, brownish-ochraceous; body beneath shortly pilose and greyish-brown. Pronotum granulose, with transverse striæ on central anterior area, the posterior lateral angles strongly produced and with a transverse subbasal furrow; corium rugose; membrane not reaching apex of abdomen.

Fig. 16.—*Cheirochela feana.*

Length $24\frac{1}{2}$ to $26\frac{1}{2}$; breadth between pronotal angles 13 millim.

Hab. Burma; Karennee (*Fea*).

The type, by the courtesy of Dr. Gestro, is here figured.

1499. **Cheirochela assamensis,** *Hope, Trans. Linn. Soc.* xviii, p. 442, tab. xl, fig. 9, *a, b, c, d, e, f* (1841); *Fieb.* (Chirochela) *Gen. Hydr.* p. 18 (1851).
Cheirochela birmaniensis, *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 369 (1897).

Smaller than *C. feana*, with the posterior pronotal angles more

straightly and laterally, not backwardly produced; anterior femora considerably less dilated; corium much less rugose and with its anterior marginal area a little less convex, apex of membrane narrower and less broadly convex; colour and markings very similar.

Length 22 to 23; breadth between pronotal angles 9 to $9\frac{1}{2}$ millim.

Hab. Assam (*Oxford Mus.*). Burma; Karennee (*Fea*).

By the kindness of Prof. Poulton of Oxford and Dr. Gestro of Genoa, I have been enabled to compare the types of Hope and Montandon and to establish their common identity.

Genus GESTROIELLA.

Gestroiella, *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 371 (1897).

Type, *G. limnocoroides*, Montand.

Distribution. Burma.

Subrotundate; head rather longer than the breadth between eyes, which are elongate and posteriorly immersed in the anterior lateral margins of the pronotum, rounded in front and posteriorly elongated, its central basal margin truncate; pronotum broad, its lateral marginal areas ampliated, its posterior angles acuminate, its posterior margin ridged; scutellum broad, subtriangular; hemelytra with the membrane obsolete, the longitudinal suture very distinctly notched beyond middle, the basal area marginally convexly rounded and covering abdomen, and then obliquely narrowed to apex exposing connexivum, the segments of which are bispinous; anterior femora in the male strongly dilated and concavely sinuate anteriorly; anterior tibiæ strongly arcuate and internally broadly dentate beyond middle, intermediate and posterior tibiæ internally clothed with fine long hairs.

1500. **Gestroiella limnocoroides**, *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 371 (1897).

Above fuscous-brown, with three longitudinal fasciæ to head and two irregular discal fasciæ to pronotum dull castaneous; body beneath pale brown, legs beneath and mottlings to their upper surface pale castaneous; body depressed, longer than broad; pronotum with a series of transverse striæ behind the posterior prolongation of head; scutellum transversely ridged anteriorly; hemelytra, excluding lateral marginal areas, subverrucose; connexivum strongly spinous.

Fig. 17.—*Gestroiella limnocoroides.*

Length 17 to 19; greatest breadth $13\frac{1}{2}$ to $14\frac{1}{2}$ millim.

Hab. Burma; Karennee (*Fea*).

Montandon's type is here figured.

Subfamily II. LACCOCORINÆ.

Laccocorinæ, *Montand. Verh. z.-b. Ges. Wien*, xlvii, p. 435, 1897.
Laccocoraria (part.), *Stål, En. Hem.* v, p. 142 (1876).

Rostrum short; anterior margin of pronotum not or only obtusely sinuate; gula short, neither tumid nor tectiform; eyes in some genera outwardly laminately marginate, sublobate; anterior tarsi variable.

Synopsis of Genera.

A. Eyes with an external process between their outer margin and the anterior angle of the pronotum.
a. Eyes anteriorly divergent .... DIAPHOROCORIS, p. 28.
b. Eyes anteriorly convergent .... HELEOCORIS, p. 29.
B. Eyes without external process .... CTENIPOCORIS, p. 32.

Genus DIAPHOROCORIS.

Diaphorocoris, *Montand. Ann. Soc. Ent. Belg.* xli, p. 61 (1897); *id. Verh. z.-b. Ges. Wien*, xlvii, p. 436 (1897).

Type, *D. punctatissimus*, Kirby.

Distribution. Ceylon.

Body oblong; head large and broad, eyes very divergent, overhanging the anterior margin of the pronotum, with a triangular external process occupying the space between the middle of the eye and the anterior angle of the pronotum; pronotum transverse, a little longer than the median line of the head, more than two and a half times broader between the lateral angles than medially long; scutellum very large; claval suture a little shorter than scutellum; membrane well developed, valvular; connexivum almost invisible above; anterior femora moderately thickened, the tibiæ straight and the tarsi two-jointed; labrum transverse, rounded in front; mesosternum tumid before the intermediate coxæ.

1501. **Diaphorocoris punctatissimus**, *Kirby* (Naucoris ?), *J. Linn. Soc., Zool.* p. 125 (1891); *Montand.* (Diaphorocoris), *Verh. z.-b. Ges. Wien*, xlvii, p. 445 (1897).

Diaphorocoris notatus, *Montand. Ann. Soc. Ent. Belg.* xli, p. 61, 1897.

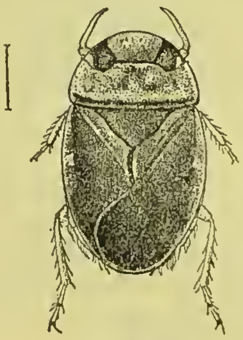

Fig. 18.
Diaphorocoris punctatissimus.

Reddish-testaceous, very thickly punctured; lateral areas of pronotum, outer process to eyes, and basal lateral margins of corium, with a detached central spot to same, ochraceous; body beneath and legs almost entirely ochraceous. A strong peculiarity of this species is its thickly punctate upper surface; the eyes are black, and the posterior margin of the pronotum and the whole of the scutellum more or less piceous; the scutellum is finely granulose, with its apex paler; membrane piceous.

Length 7 to $7\frac{1}{2}$ millim.

Hab. Ceylon ; Pundaluoya (*Green*).
Found on wet rocks by running water (*E. E. Green*).

Genus HELEOCORIS.

Heleocoris, *Stål, En. Hem.* v, pp. 142 & 146 (1876) ; *Montand. Verh. z.-b. Ges. Wien,* xlvii, p. 436 (1897).

Type, *H. obliquatus*, Spin.*

Distribution. Very widely distributed ; at present recorded from all the principal zoological regions excepting the Nearctic and Australasian.

This genus is to be primarily separated from the preceding one (*Diaphorocoris*) by the structure of the eyes, which are subparallel and slightly converging anteriorly ; disk of the pronotum regularly and uniformly convex ; connexivum posteriorly visible; the corium a little obliquely narrowed from above middle to apex ; membrane small.

1502. **Heleocoris strabus,** *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 372 (1887) ; *id. Verh. z.-b. Ges. Wien,* xlvii, p. 447 (1897).

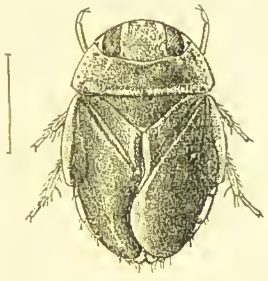
Fig. 19.—*Heleocoris strabus.*

Head and pronotum fuscous ; three spots on anterior margin of head, the process beyond eyes, and the lateral margins of the pronotum more or less ochraceous, the last with some small fuscous spots ; hemelytra and scutellum piceous, basal lateral margin of corium and exposed connexivum ochraceous ; body beneath and legs ochraceous, a spot on each side of head beneath piceous ; abdomen brownish-ochraceous, lateral margins of the hemelytra abruptly and strongly sinuate behind the embolium, where it is truncately cut ; lateral posterior angles of the pronotum obliquely truncate ; eyes anteriorly converging their whole length ; claval suture as long as the scutellum.

Length 11 millim.

Hab. Tenasserim ; Thagata (*Fea*).

Montandon's type, by the courtesy of Dr. Gestro, is here figured.

1503. **Heleocoris breviceps,** *Montand. Ann. Soc. Ent. Belg.* xli, p. 55 (1897) ; *id. Verh. z.-b. Ges. Wien,* xlvii, p. 447 (1897).

Body oval in form, widened at middle and about equally attenuated both anteriorly and posteriorly ; yellow, with brown

* Stål made *H. obliquatus*, Spin., the type of his genus, from a specimen he thus identified in the collection of Signoret. Montandon, who has since examined this specimen, doubts its being Spinola's species. In that case I would propose that *H. strabus*, Montand., be considered the type of *Heleocoris.*

impressions and spots on head, pronotum, embolium, and underside of body; legs entirely yellow; scutellum and hemelytra brownish. Inner margins of eyes parallel, in form much enlarged; scutellum blackish-brown with the disk narrowly yellow; hemelytra brown; embolium largely yellow, the yellow tint fading at its inner margin; intraocular area of head marked on each side by two small foveations, situate one before, the other near the anterior portion of the inner margin of the eyes; abdomen beneath largely blackish with its apex yellowish.

Length 9·5; breadth 6·5 millim.

Hab. "Indes orientales" (*Coll. Signoret*).

1504. **Heleocoris bergrothi,** *Montand. Verh. z.-b. Ges. Wien,* xlvii, pp. 447 & 452 (1897).

Largely oval; palely yellow with brown points forming indistinct spots on the head and pronotum; scutellum black with its apex yellow; hemelytra blackish-brown with the embolium largely yellowish; eyes as long as broad, their inner margins parallel; intraocular area of head with two small somewhat rounded concolorous foveations on each side, one situate a little in front of the middle of the inner margin of eye, the other placed more anteriorly; a lozenge-shaped spot formed of small brown points on the vertex and base of head, from which anteriorly emerge two lines of brown points which do not reach the anterior margin of the head; pronotum transverse, the lateral margins arcuate, the lateral posterior angles acute, the surface densely and finely punctate, granulose, somewhat finely transversely wrinkled; scutellum very finely granulose, black, with a yellow V-shaped discal spot; connexivum, body beneath, and legs entirely pale yellowish.

Length 9·7; breadth 6·8 millim.

Hab. Utakamand.

1505. **Heleocoris læviceps,** *Montand. Verh. z.-b. Ges. Wien,* xlvii, p. 448 (1897).

Oval, yellowish, a little ochraceons with brown punctures and spots forming distinct shadings on head and pronotum; scutellum black; hemelytra brown, with the outer margin of the embolium yellowish; intraocular area to head marked on each edge by a faint longitudinal finely punctured depression at inner margin of eye; head smooth on the anterior half, largely brown on all the median portion longitudinally to its anterior margin; claval suture a little longer than half the length of the scutellum; pronotum with its lateral margins nearly straight, slightly arcuated, the posterior angle somewhat rounded; scutellum finely and densely granulose, with the lateral margins obtusely but distinctly sinuate before the middle.

Length 8; breadth 5 millim.

Hab. Tenasserim.

1506. **Heleocoris elongatus**, *Montand. Ann. Soc. Ent. Belg.* xli, p. 59 (1897); *id. Verh. z.-b. Ges. Wien*, xlvii, p. 446 (1897).

Elongately oval, of a clear yellow tint densely punctured with black on the head and pronotum; scutellum and hemelytra brown with the embolium largely yellowish; lateral margins of the intra-ocular area to head marked on each side by three small dark depressions placed longitudinally at inner margins of eyes; head finely and densely punctured and granulose to the extremity, more or less punctured with brown, but without the longitudinal median brown spot as in *H. læviceps*; claval suture a little longer than half the length of the scutellum; body beneath entirely yellow; pronotum with the lateral margins very slightly arcuated, nearly straight, the lateral posterior angles rounded, not prominent behind, the posterior edge straight; embolium of hemelytra a little enlarged, yellow at base and along the outer margin, the yellow margin bisinuated at its inner edge by two brown spots; membrane dark brown, well developed, largely valvular; connexivum yellow, with a straight transverse brown fascia on the posterior margins of the segments.

Length 8; breadth $4\frac{1}{2}$ millim.

Hab. "Indes orientales" (*Stockholm Mus.*).

1507. **Heleocoris indicus**, *Montand. Verh. z.-b. Ges. Wien*, xlvii, p. 450 (1897).

Oval, flavescent with brown punctures more or less dense forming small ill-defined shadings on the head and pronotum; scutellum and hemelytra dark brown, a median longitudinal line to the scutellum and a large portion of the embolium yellowish.

Differs from *H. elongatus* by its more oval and less elongate form; the claval suture nearly as long as the length of the scutellum; underside of body entirely yellowish; pronotum with the lateral margins nearly straight, very slightly arcuated, the posterior angles subtruncate; embolium of the hemelytra yellowish, with a medial brown spot on its inner margin and another spot at its apex; connexivum yellow, very narrowly darkened on the outer edge of the posterior angles of each segment.

Length $8\frac{1}{2}$; breadth $5\frac{1}{2}$ millim.

Hab. Madras Province; Bellary (*Paris Mus.*).

1508. **Heleocoris obliquatus**, *Spin.* (Naucoris) *Ess.* p. 54. 4 (1837); *Stål* (Heleocoris), *En. Hem.* v, p. 146 (1876).

"Size of *Naucoris maculata*, Fabr. (a Palæarctic species). Head and pronotum regularly spotted with grey or black; the last proportionally shorter and wider; scutellum black, its apex pale; hemelytra black, outer margin pale near base; underside of body and legs pale. Pronotum not distinctly bordered with a marginal furrow, the posterior angles terminating obliquely." (*Spinola.*)

Hab. Bombay.

This must be considered, at least for the present, a species of

doubtful position in generic classification. I do not know it, nor am I aware of any collection that contains an authentically identified specimen.

1509. **Heleocoris (?) acuta**, *Spin.* (Naucoris) *Ess.* p. 55. 5 (1837).

This is another species of doubtful location, the male of which is described by Spinola as resembling by the colours above, the male of the preceding species *H. obliquatus*, but differing notably by the shape of the pronotum, which is not perceptibly "reborde," with no marginal furrow, the posterior angles acute; while the body is a little longer and broader.

No dimensions given in the description.

Hab. Bombay (*Dupont*).

Genus CTENIPOCORIS.

Ctenipocoris, *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 373 (1897); *id. Verh. z.-b. Ges. Wien*, xlvii, p. 436 (1897).

Type, *C. asiaticus*, Montand.

Distribution. Burma.

Body oval; head moderately convex above the eyes, converging anteriorly, but the external process beyond them, as in the two preceding genera, practically wanting; scutellum very large, much broader than long, claval suture little more than half the length of scutellum; hemelytra completely covering the abdomen, membrane well developed; anterior femora dilated, the tarsi two-jointed, the intermediate and posterior tibiæ armed with long strong spines.

1510. **Ctenipocoris asiaticus**, *Montand. Ann. Mus. Civ. Gen.* xxxvii, p. 374 (1897).

Fig. 20.
Ctenipocoris asiaticus.

Head and pronotum ochraceous; scutellum and hemelytra piceous, margins of the last ochraceous; body beneath greyishly piceous; head beneath, lateral areas of prosternum, rostrum, legs, and central longitudinal fascia to abdomen—not reaching base—ochraceous; head with two small central spots on anterior areas, inner margins of eyes, and an oblique spot before them piceous; pronotum with a subbasal transverse piceous line and with a few small spots of the same colour; posterior lateral margins of the scutellum narrowly, obscurely ochraceous; claval suture margined with obscure ochraceous; spines to the intermediate and posterior tibiæ brownish.

Length 7 to 8 millim.

Hab. Burma; Karennee (*Fea*).

Montandon's type is here figured.

Subfamily III. NAUCORINÆ.

Naucoraria, *Stål, En. Hem.* v, p. 141 (1876).

Mesosternum longitudinally tumid or obtusely tectiform ; metasternum moderately elevated ; pronotum at base about one-third broader than the length of head and pronotum together ; head large, broad and long ; pronotum anteriorly profoundly sinuate for the reception of the head, its anterior angles somewhat longly anteriorly produced and extending to, or nearly to, the middle of the eyes, which are anteriorly more or less convergent ; body suboval or ovate.

Genus **THURSELINUS.**

Thurselinus, *Dist. Entomologist,* xxxvii, p. 259 (1904).

Type, *T. greeni*, Dist.
Distribution. Ceylon.

Body ovate, moderately convex ; head very large, almost as long as pronotum, rather more than one-third broader between eyes than long ; eyes elongate, much narrowed, and slightly converging anteriorly ; labrum rounded, reaching base of second joint of rostrum ; pronotum scarcely broader than base of hemelytra, only slightly narrowed anteriorly, its anterior angles not reaching the middle of eyes ; scutellum short, about twice as broad at base as long ; hemelytra complete ; mesonotum medially carinately longitudinally elevated ; anterior femora ampliated, inwardly notched towards base.

Differs from *Macrocoris* * by the much larger and broader head, anterior angles of pronotum not reaching the middle of eyes, shorter and broader scutellum, &c.

1511. **Thurselinus greeni**, *Dist. Entomologist,* xxxvii, p. 259 (1904).

Fig. 21.
Thurselinus greeni.

Ochraceous ; scutellum brownish-ochraceous ; eyes black ; basal area of pronotum with some longitudinal piceous lines ; body beneath and legs uniformly ochraceous ; membrane clouded with pale fuscous ; head almost as long as pronotum, its anterior margin convex, with a somewhat flattened central basal space ; pronotum transversely striate near anterior margin, very finely and obscurely punctate, the lateral margins slightly rounded, a little narrowed anteriorly, but almost subparallel ; scutellum very finely granulose, broadly subtriangular ; connexivum piceous at segmental incisures.

Length 6 millim.

Hab. Ceylon ; Keshewa (*Green*).

* A genus represented by a species from Madagascar.

Family BELOSTOMATIDÆ.

Belostomides, *Duf. Ann. Soc. Ent. Fr.* 1863, p. 374.
Belostomiden, *Mayr, Verh. z.-b. Ges. Wien,* xiii, p. 339 (1863); *id. tom. cit.* xxi, p. 399 (1871).
Belostomatida, *Stål, Hem. Afr.* iii, p. 178 (1865).

Body more or less depressed; head in front of eyes triangularly or conically produced; rostrum short, three-jointed; abdominal appendages short; legs natatorial, the anterior legs raptorial, the anterior coxæ inserted in the anterior area of the prosternum.

These water-bugs have long been known from the peculiar sexual characteristic of carrying their eggs in a cemented form on their back, or upper surface. This was till recently supposed to be a female habit, and it had been authoritatively asserted that she placed them on her back by the aid of her ovipositor. This has now been experimentally disproved by Miss F. W. Slater ('American Naturalist'), and the male is the egg carrier, the eggs being apparently forcibly attached to him by the female (abstract, 'Zoologist,' 1900, p. 93).

Synopsis of Genera.

A. Posterior tibiæ and tarsi not prominently compressed.
  a. Head moderately conically produced and tumid above; membrane well developed. NECTOCORIS, p. 34.
  b. Head subtriangularly but not conically produced; membrane somewhat small .... SPHÆRODEMA, p. 35.
B. Posterior tibiæ and tarsi prominently ampliately compressed .... BELOSTOMA, p. 37.

Genus NECTOCORIS.

Nectocoris, *Mayr, Verh. z.-b. Ges. Wien,* xxi, p. 432 (1871).

Type, *N. stâli*, Mayr.

Distribution. As at present known—Oriental.

Body small, depressed, elongately subovate; head moderately conically produced in front of eyes, centrally tumid, profoundly sulcate at inner margins of eyes; rostrum with the second joint longest; pronotum with the lateral margins straight, a little ampliated, the posterior margin truncate, anterior margin moderately sinuate before base of head; scutellum subequilateral; hemelytra with the outer areas moderately convexly ampliate, membrane complete, longitudinally veined; anterior tarsi with two claws.

1512. **Nectocoris stâli**, *Mayr, Verh. z.-b. Ges. Wien,* xxi, p. 432 (1871).

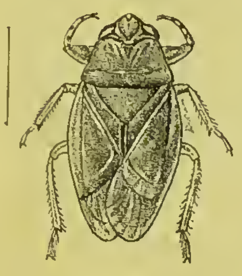

Fig. 22.
Nectocoris stâli.

Ochraceous, variegated with fuscous; legs ochraceous, femora more or less spotted or suffused with fuscous, the anterior tibiæ with three fuscous annulations; head with the disk distinctly ovally tumid, but depressed before the inner margins of eyes; subbasal transverse impression to pronotum medially subobsolete, but profound at each end; claval suture almost as long as scutellum: embolium of hemelytra a little paler in hue.

Length 11 to 12 millim.

Hab. Burma; Rangoon (*Fea*).

Genus SPHÆRODEMA.

Sphærodema, *Lap. Ess. Hém.* p. 18 (1832); *Montand. Bull. Soc. Sci. Bucarest,* ix, p. 264 (1900); *id. tom. cit.* xii, p. 120 (1903).
Diplonychus, *Amy. & Serv.* (*nec Lap.*) *Hém.* p. 436 (1843); *Mayr, Verh. z.-b. Ges. Wien,* xxi, p. 435 (1871).
Appasus, *Amy. & Serv. Hém.* p. 430 (1843); *Mayr, Verh. z.-b. Ges. Wien,* xxi, p. 433 (1871).
Nervinops, *Duf Ann. Soc. Ent. Fr.* 1863, p. 398.

Type, *S. annulata*, Fabr.

Distribution. Ethiopian, Oriental, and Australasian Regions, and Southern and Eastern Palæarctic Regions.

Body depressed, more or less ovate or subovate; head before eyes subtriangularly but not conically produced; rostrum with the second joint longest; pronotum trapeziform, the anterior margin moderately sinuate, posterior margin subtruncate, lateral margins nearly straight and moderately ampliate; scutellum subequilateral; hemelytra with the membrane distinct but sometimes very small, outer area moderately convexly ampliate; anterior femora incrassate, tarsi two-jointed; anterior tarsal claws two, sometimes very short.

A. *Body very broad; greatest expanse of hemelytra together almost equal to their length; head as long as breadth between eyes.*

1513. **Sphærodema annulatum**, *Fabr.* (Nepa) *Syst. Rhyng.* p. 106 (1803); *Duf.* (Sphærodema) *Ann. Soc. Ent. Fr.* 1863, p. 397; *Mayr, Verh. z.-b. Ges. Wien,* xxi, p. 434 (1871).
Sphærodema rotundata, *Lap. Ess. Hém.* p. 18 (1832).
Belostoma marginata, *Gray, in Griffith's Animal Kingd., Insect.* ii, p. 248, tab. xciii, fig. 4 (1832).

Ochraceous or ochraceous-brown, the lateral margins of the

pronotum and the embolium of the hemelytra always paler in hue; abdomen beneath with its disk shining, its sublateral margins and the disk of the sternum greyishly opaque; head about as long as space between eyes, which are elongately oblique; pronotum thickly finely punctate, with a central longitudinal and a subbasal transverse discal incised line, two subanterior discal foveations; scutellum and corium thickly and very finely punctate; membrane small; embolium convexly ampliate with its outer margin a little reflexed.

Length 21 to 22; greatest breadth of hemelytra 16 to 17 millim.

Hab. Sind. Silhet. Calcutta Tanks (*Ind. Mus.*)

B. *Greatest expanse of hemelytra together shorter than their length; head shorter than breadth between eyes.*

a. *Anterior tarsal claws short.*

1514. **Sphærodema rusticum,** *Fabr.* (Nepa) *Syst. Rhyng.* p. 106 (1803); *Duf.* (Nervinops) *Ann. Soc. Ent. Fr.* 1863, p. 399 (part.); *Mayr* (Diplonychus), *Verh. z.-b. Ges. Wien*, xxi, p. 438 (1871).

? Nepa plana, *Sulz. Abgek. Gesch. d. Ins.* p. 92, tab. x, fig. 2 (1776).

Var. marginicollis, *Duf.* (Appasus) *Ann. Soc. Ent. Fr.* 1863, p. 393.

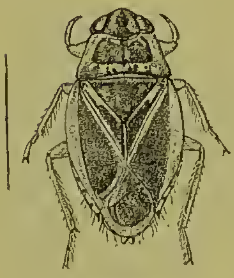

Fig. 23.
Sphærodema rusticum.

Ochraceous or ochraceous-brown, the lateral and basal margins of pronotum and the embolium always paler; body beneath and legs concolorous, ochraceous; head shorter than breadth between eyes, which are obliquely converging; pronotum, scutellum, and corium very thickly and finely punctate; membrane small; anterior tarsal claws short.

Length 15 to 16; greatest breadth 9 to $9\frac{1}{2}$ millim.

Hab. Bombay (*Leith*). Ceylon; Colombo (*Coll. Dist.*). Burma; Mandalay, Teinzo (*Fea*).—Siam; Malay Peninsula. Sumatra. Java. Philippines. China. Australia; Queensland (*Coll. Dist.*).

The specimen figured represents the var. *marginicollis*, Duf.

b. *Anterior tarsal claws moderately long.*

1515. **Sphærodema molestum,** *Duf.* (Appasus) *Ann. Soc. Ent. Fr.* 1863, p. 395; *Mayr* (Diplonychus), *Verh. z.-b. Ges. Wien*, xxi p. 437 (1871).

Nervinops rusticus, *Duf. Ann. Soc. Ent. Fr.* 1863, p. 399 (part.).

Diplonychus subrhombeus, *Mayr, Verh. z.-b. Ges. Wien*, xxi, p. 437 (1871).

A little broader than *S. rusticum*, head shorter and broader, posterior angles of pronotum a little more obtuse and less acute, anterior tarsal claws longer. In the Montandon collection of Belostomatidæ acquired by the British Museum there is a cotype of Dufour's species *S. molestum*, and another determined by Mayr as his *S. subrhombeus*, which I cannot separate, and which are evidently conspecific, differing only in size, the last being smallest.

Length 13½ to 17½ millim.

Hab. Kashmir (*Vienna Mus.*); Calcutta Tanks (*Ind. Mus.*).—Malacca (*Coll. Sign.*).

Genus BELOSTOMA.

Belostoma, *Latr. Gen. Crust. et Ins.* iii, p. 144 (1807); *Amy. & Serv. Hém.* p. 427 (1843); *Fieb. Gen. Hydroc.* p. 21, t. 2 D (1851); *Duf. Ann. Soc. Ent. Fr.* 1863, p. 379; *Stål, Hem. Afr.* iii, p. 182 (1865); *Mayr, Verh. z.-b. Ges. Wien*, xxi, pp. 402 & 422 (1871).

Belostomum, *Burm. Handb. Ent.* ii, 1, p. 195 (1835).

Amorgius, *Stål, Hem. Afr.* iii, p. 179 (1865).

Type, *B. indicum*, Lep. & Serv.

Distribution. Eastern Palæarctic and the other great zoogeographical regions.

Body very large, narrowly elliptical; head before eyes a little conically produced, and between the eyes narrow; rostrum very thick, second joint much the longest; pronotum trapezoidal, anteriorly centrally truncate and posteriorly moderately sinuate; scutellum a little broader than long; hemelytra with distinct membrane provided with longitudinal veins; legs of moderate length; anterior coxæ short, not extending beyond the base of the prosternum; femora compressed, anterior femora incrassate and sulcated beneath; posterior tibiæ and tarsi ampliately compressed; tarsi two-jointed; anterior tarsi with one claw, intermediate and posterior tarsi provided with two.

These large and widely-distributed insects, though aquatic in habit, are more frequently met with on their land excursions. They are greatly attracted by light, and are frequent visitors to the electric lights now so common on the roads in most civilised communities. At Trinidad, where the largest species is found, it is known by the name of the "Electric Bug," and in the Transvaal I took most of the South-African species (*B. niloticum*) at the lights of Pretoria. Its proboscis is capable of producing a very painful puncture, of which I have had more than one experience.

Only one very widely-distributed species is found in the fauna of British India.

1516. **Belostoma indicum**, *Lep. & Serv. Encycl. Méth.* x, p. 272 (1775); *Amy. & Serv. Hém.* p. 429 (1843); *Mayr, Verh. z.-b. Ges. Wien*, xxi, p. 426 (1871); *Green* (Amorgius), *Entomologist*, xxxiv, p. 113 (1901).

Head, pronotum, and scutellum dark brownish ochraceous; pronotum with the posterior and lateral margins and some longitudinal discal fasciæ paler ochraceous; scutellum with a fascia near basal angles, a narrow central line, and the apical area paler ochraceous; hemelytra ochraceous with darker suffusions, of which

Fig. 24.—*Belostoma indicum.*

the principal ones are on the clavus and discal areas of corium; body beneath of a duller and more opaque brownish hue; posterior lateral margins and apex of abdomen beneath pale ochraceous, sternum more or less margined and suffused with the same colour; femora streaked above and more or less banded beneath with fuscous.

Length 62 to 82 millim.

Hab. Sind (*Coll. Dist.*); Malabar, Bhowani River; Bombay (*Leith & Dixon*); Trivaudrum. Ceylon (*Green*). Burma, Northwest District (*Coll. Dist.*). North Chin Hills (*Watson*). Karennee Teinzo (*Fea*). Tenasserim, Malewoon (*Fea*).—Malay Peninsula. Prov. Wellesley (*Distant*). Sumatra (*Forbes & Bock*). Java. Philippines (*Semper*).

Mr. E. E. Green (*supra*) has given some most interesting facts relating to the life-history of this species. From observations made on specimens kept in a large glass aquarium, he observed that they were sluggish creatures and remain during daytime with the tip of the tail projecting above the surface of the water, seldom moving unless disturbed. He was of opinion that the natural food of the species is such large insects or small terrestrial animals as fall accidentally into the water; it will also feed upon frogs when it can catch them. Large horny beetles, such as *Oryctes*, and large grasshoppers were also taken.

Every fresh specimen that Mr. Green examined was infested by a peculiar elongate parasite or water-mite (fam. Hydrachnidæ), some species of which attack most water-bugs.

Family NOTONECTIDÆ.

Notonectæ, *Fieb. Rhynchotogr.* p. 45 (1851).
Notonectidæ, *Curtis, Brit. Entom.* i, p. 10, pl. 10 (1824); *Kirk. Tr. E. S.* 1897, p. 394.
Notonectida, *Stål, Hem. Afr.* iii, p. 190 (1865).

Body oblong, convex; eyes large; ocelli absent; antennæ short, four-jointed; rostrum three- or four-jointed; scutellum large, triangular; anterior legs inserted at the posterior margin of the pronotum.

Synopsis of Subfamilies.

A. Posterior tibiæ and tarsi ciliate; abdomen beneath centrally carinate; rostrum four-jointed; eyes large and conspicuous	*Notonectinæ.*
B. Posterior tibiæ and tarsi not ciliate; abdomen beneath not carinate; rostrum three-jointed; eyes small	*Pleinæ.*

Subfamily I. NOTONECTINÆ.

Notonectinæ, *Kirk. Tr. E. S.* 1897, p. 394.

The characters for this subfamily having already been detailed, it only remains to define the genera.

Synopsis of Genera.

A. Pronotum moderately long, not transverse.	
a. Last joint of antennæ much shorter than penultimate joint; posterior tarsi not provided with unguiculi*	NOTONECTA, p. 40.
b. Last joint of antennæ much longer than penultimate joint; posterior tarsi provided with unguiculi	ANISOPS, p. 44.
B. Pronotum short, transverse, its anterior angles oveately excavate	ENITHARES, p. 42.

Genus NOTONECTA.

Notonecta, *Linn. Syst. Nat.* ed. x, p. 439 (1758); *Fieb. Rhynchotogr.* p. 48 (1851); *Saund. Hem. Heteropt. Brit. Islds.* p. 329 (1892); *Kirk. Tr. E. S.* 1897, p. 397.

Type, *N. glauca*, Linn.
Distribution. Practically universal.

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* Unguiculi=hooks of tarsal claws.

Head broad, eyes large, interocular space varying in breadth and shape; rostrum four-jointed; pronotum trapeziform, transverse, strongly convex, anterior margin a little centrally produced, lateral margins obliquely straight, the posterior lateral angles very slightly subprominent; scutellum large, almost triangular; hemelytra complete, membrane distinct; abdomen beneath ciliate on lateral areas and at apex, and centrally longitudinally carinate; tarsi two-jointed; intermediate femora with a prominent tooth near apex.

These insects, commonly known in this country as the "Water Boatman," swim on their backs. Their eggs are inserted into the stems of aquatic plants. They are extremely predaceous and will attack small fish, tadpoles, small frogs, &c., as keepers of aquaria have learned by experience.

1517. **Notonecta montandoni,** *Kirk. A. M. N. H.* (6) xx, p. 56 (1897); *id. Tr. E. S.* 1897, p. 417.

Eyes, scutellum, membrane, and body beneath black; head, pronotum, legs, and connexivum more or less ochraceous; corium purplish-red, in some specimens the clavus is more or less irregularly marked with black, and, according to the description, sometimes "a broad undulatory band runs across the corium," which I have only seen in specimens from China. Interocular space very narrow at base and then outwardly obliquely divergent, the base little more than half the breadth of apex.

Fig. 25.
Notonecta montandoni.

Length 15 to 17 millim.

Hab. Burma: Karennee (*Fea*); Ruby Mines (*Doherty*). — Tibet, Mou-pin (*Paris Mus.*). China: Kiang-si (*Paris Mus.*); Chang Yang (*Pratt*).

1518. **Notonecta glauca,** *Linn. Syst. Nat.* ed. x, p. 439 (1758); *Dist. Sec. Yark. Miss., Rhynch.* p. 13 (1879); for full syn. *cf. Kirk. Tr. E. S.* 1897, p. 419.

A very variable species in coloration, of which many varietal forms have been described, one of which is found in British India; this is the variety *N. marginata*, Müll. Zool. Dan. p. 104 (1776), which has been thus diagnosed by Kirkaldy (*supra*):—

"Hemelytra bluish-black or dull black; clavus luteous except at the sutural margins; a longitudinal luteous fascia, varying in length, at the base of the endo- and mesocorium; in many individuals there are one or two ferruginous spots near the apical margin of the corium."

In this species the breadth and shape of the interocular space (*notocephalon* and *synthlipes*, Kirk.) cannot be relied on as a specific character, if those specimens returned to me by Mr. Kirkaldy himself, labelled "*N. glauca*," are to be relied on.

Length 14 to 17 millim.

Hab. Kashmir, Sind Valley (*fide Kirkaldy*).—Generally distributed throughout the Palæarctic Region.

It was taken by Dr. Stoliczka (var. *marmorea*, Fabr.) at Yarkand.

Genus ENITHARES.

Enithares, *Spin. Ess. Hém.* p. 60 (1837); *Stål, Hem. Afr.* iii, p. 190 (1865); *Kirk. Wien. ent. Zeit.* xxiii, p. 95 (1904).
Bothronotus, *Fieb. Rhynchotogr.* p. 46 (1851).
Enithara, *Sign. Ann. Soc. Ent. Fr.* (3) viii, p. 971 (1860).

Type, *E. indica*, Fabr.

Distribution. Neotropical, Ethiopian, Australasian, and Oriental Regions; also found in China.

This genus may be easily separated from *Notonecta* by the shorter, transverse pronotum and by the foveately excavate anterior angles of the same; this is so apparent a character that minor differences may be ignored in this work, which has a faunistic and not taxonomic inception.

1519. **Enithares indica**, *Fabr.* (Notonecta) *Syst. Rhyng.* p. 103. 7 (1803); *Stål* (Enithares), *Hem. Fabr.* i, p. 136 (1868); *Kirk. Entomol.* xxxiii, p. 10 (1900).
Notonecta abbreviata, *Walk.* (*MS.*) *in Tennent's 'Ceylon,'* ed. 2, i, p. 293 (1859); *Kirby, J. Linn. Soc., Zool.* xxiv, p. 126 (1891); *Kirk.* (Enithares) *Wien. ent. Zeit.* xxiii, p. 109 (1904).

Fig. 26.—*Enithares indica.*

Head and pronotum ochraceous, basal area of pronotum more or less piceous; scutellum black, with a curved pale ochraceous fascia (sometimes almost obsolete) on each lateral area; hemelytra black, basal and lateral areas and usually an apical spot to corium and apical area of membrane more or less pale ochraceous; body beneath piceous, lateral margins and legs pale ochraceous; interocular space much narrowed at base, ampliated anteriorly.

Length $8\frac{1}{2}$ to 10 millim.

Hab. Tranquebar. Bombay (*Dixon*). Trivandrum. Ceylon (*Green*). Andaman Islands (*de Roepstorff*).—Java, Sumatra.

Frequents more or less stagnant water, paddy-fields, ditches, &c. (*E. E. Green*).

Kirkaldy, apparently on the axiom "once a synonym always a

synonym," sinks the Fabrician name, although he states it is distinct from Linnæus's species *N. indica*, which is a true *Notonecta*. We cannot follow this—to us—unnecessary alteration.

1520. **Enithares marginata**, *Fieb.* (Bothronotus) *Rhynchotogr.* p. 47 (1851); *Kirk. Wien. ent. Zeit.* xxiii, p. 108 (1904).

Luteous; tegmina subhyaline, a whitish stripe on the terminal suture; wings dirty whitish, basal half blackish-brown; front and middle femora brownish on upperside at base. Elongate; head strongly projecting before the eyes; neck-groove brownish; upper lip triangular, shortly pointed, with sloping sides; tegmina strongly punctured, covered with very fine granules and with fine long hair; embolium long, luteous; a white stripe of thicker substance on the terminal suture of the corium; margin of scutellum and terminal edge yellow; membrane subhyaline, with the usual coarse opaque basal pieces present, hinder back and back of the tibiæ blackish-brown; the last tibiæ set with whitish hairs, as well as the terminal piece and the whitish spots on the lateral margin; underside blackish; middle keel and connexivum dirty yellow, with a brown hind border; middle tibiæ at the end with one tooth.

Length "3½ lines."

Hab. "Hinterindien" (*Dr. Helfer*).

I have not seen this species.

1521. **Enithares lineatipes**, *Horv. Term. Füzetek*, xii, p. 39 (1889); *Kirk. Wien. ent. Zeit.* xxiii, p. 103 (1904).
—— sp.?, *Dist. Sec. Yark. Miss., Rhynch.* p. 13 (1879).

Palely testaceous or flavous-testaceous; interocular space with two central fuscous spots and a smaller one a little before base; scutellum with a triangular spot at each basal angle, and sometimes with a large central somewhat rounded spot, black; hemelytra dull brownish-ochraceous; abdomen beneath fuscous, the lateral margins and central carination paler; femora longitudinally linearly fuscous; eyes large, their outer margins projecting a little beyond the anterior angles of the pronotum; the face with four distinct impressions; lateral pronotal margins strongly convex.

Length 11 millim.

Hab. Himalaya (*Mus. Nat. Hongrois*). Jhelam Valley (*Stoliczka*); Tenasserim; Plapoo (*Fea*).

1522. **Enithares templetoni**, *Kirby* (Notonecta), *J. Linn. Soc., Zool.* xxiv, p. 126 (1891); *Kirk.* (Enithares) *Entomol.* xxxiii, p. 10 (1900); *id. Wien. ent. Zeit.* xxiii, p. 102 (1904).

Very closely allied to *E. lineatipes*, but with the lateral margins of the pronotum much less convex and more sinuate, the face less distinctly impressed.

Head and pronotum pale ochraceous; anterior margins of interocular space, anterior angular foveations to pronotum, and sometimes basal area of pronotum, more or less piceous; scutellum pale ochraceous, with a large central triangular basal spot and a spot at each basal angle black; corium pale dull ochraceous, the claval, inner, and apical areas and a posterior elongate submarginal streak black; membrane black; body beneath and legs ochraceous, the abdomen more or less fuscous; lateral pronotal margins obliquely sinuate.

Length 10 to 12 millim.

Hab. Bombay (*Dixon*). Ceylon (*Green*).—Siamese Malay States.

1523. **Enithares triangularis**, *Guér.* (Notonecta) *Icon. Règn. Anim.* iii, p. 354 (1844); *Kirk.* (Enithares) *Entomol.* xxxiii, p. 10 (1900); *id. Wien. ent. Zeit.* xxiii, p. 99 (1904).

Notonecta simplex, *Walk. MS. in Tennent's 'Ceylon,'* ed. 2, vol. i, p. 292 (1859); *Kirby, J. Linn. Soc., Zool.* xxiv, p. 125 (1891).

Somewhat closely resembling *E. templetoni*, but larger, the lateral margins of the interocular space more regularly curved and less suddenly narrowed at base; pronotal lateral margins more straightly oblique, less sinuate.

Head and pronotum pale ochraceous, the eyes and some confluent spots on anterior area of pronotum fuscous; scutellum ochraceous, a large basal triangular spot connected with a spot at each basal angle black; corium ochraceous, inner margin and apical area of clavus, apical area and a posterior submarginal elongate streak to corium, black; membrane black, sometimes paler at base; body beneath and legs ochraceous, abdomen more or less fuscous.

Length 14 to 15½ millim.

Hab. Nilgiris (*Paris Mus.*); Trivandrum (*Coll. Dist.*); Trichinopoly. Ceylon (*Green*).

Genus ANISOPS.

Anisops, *Spin. Ess. Hém.* p. 58 (1837); *Fieb. Rhynchotogr.* p. 57 (1851); *Stål, Hem. Afr.* iii, p. 191 (1865); *Kirk. Wien. ent. Zeit.* xxiii, p. 111 (1904).

Type, *A. niveus*, Fabr.

Distribution. Distributed throughout the principal zoo-geographical regions *.

This genus is allied to *Notonecta* by the non-transverse pronotum, thus differing from *Enithares*. From *Notonecta* it is distinguished by

* Kirkaldy has recently proposed a new genus, *Bucnoa*, for the reception of the Neotropical species.

all the tarsi being provided with claws, and in having the last joint of the antennæ longer than the penultimate joint, characters reversed in *Notonecta*.

Three species, according to present knowledge, are found in British India.

1524. **Anisops sardea**, *Herr.-Schäff. Wanz. Ins.* ix, p. 40, fig. 904 (1852); *Kirk. Wien. ent. Zeit.* xxiii, p. 114 (1904) et syn.
Anisops nivea, *Spin. nec Fabr. Ess. Hém.* p. 58 (1837).
Anisops productus, *Fieb. Rhynchotogr.* p. 60 (1851); *Stål, Hem. Afr.* iii, p. 191 (1865).
Anisops natalensis, *Stål, Öfv. Vet.-Ak. Förh.* xii, p. 89 (1855).
Notonecta nanula, *Walk. Zoologist*, p. 2381 (1870).
? Notonecta alba, *Forskål, Descr. Anim. Orient.* p. xxiii (1775).

Pale stramineous, eyes black; hemelytra sordid-grey. Male with a long, triangular, obtuse apically-pointed cephalic projection, which is absent in the female. In both sexes there is a

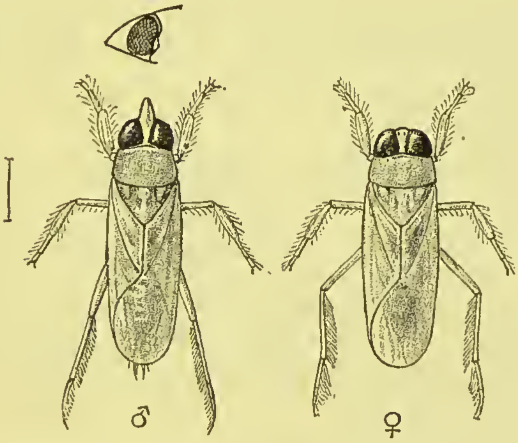


Fig. 27.—*Anisops sardea.*

distinct foveate impression near each basal angle of the scutellum; the interocular space is very narrow at base.

Length 6 to 7½ millim.

Hab. Bombay (*Helfer*). Burma: Minhla (*Comotto*).—Widely distributed in S. Palæarctic and Ethiopian Regions.

The sexes vary much in size, some females being larger than small males. Kirkaldy, who seems to have examined a large number of specimens, gives the dimensions as: ♂ 9–10½, ♀ 7¾–8¾ millim., but I have seen no Oriental specimens that approach that size.

The two specimens here figured were collected by Capt. Comotto in Burma.

1525. **Anisops fieberi**, *Kirk. Entomologist*, 1901, p. 5; *id. Wien. ent. Zeit.* xxiii, p. 116 (1904).
Anisops niveus, *Fieb. Rhynchotogr.* p. 60 (1851), *nec Fabr.*

Almost indistinguishable from *A. sardea*, except in the male sex, in which the cephalic projection is much shorter, less angulate, and more truncate anteriorly.

Length, ♂, 5 millim.

Hab. "Distributed over Brit. India" (*fide Kirkaldy*). Ceylon (*Coll. Dist.*). Celebes.

I possess only one male specimen of this species, which was collected in Ceylon. It is probably anything but rare, but has escaped the attention of collectors.

1526. **Anisops niveus**, *Fabr.* (Notonecta) *Syst. Ent.* p. 690 (1775); *Kirk.* (Anisops) *Ann. Soc. Ent. Fr.* 1899, p. 105; *id. Wien. ent. Zeit.* xxiii, p. 118 (1904).
Notonecta ciliata, *Fabr. Ent. Syst. Suppl.* p. 524 (1798).
Anisops hyalinus, *Fieb. Abh. böhm. Ges. Wiss.* (5) vii, p. 482 (1851).
Anisops ciliatus, *Stål, Vet.-Ak. Handl.* vii, 11, p. 137 (1868).
Anisops pellucens, *Gerst. Van der Decken's Reise*, iii, 2, p. 424 (1873).
Anisops scutellaris, *de Carl. Ann. Mus. Civ. Gen.* xxxv, p. 123 (1895).

This widely-distributed species is larger in size than the two preceding, and differs also by the absence of the cephalic protuberance in the male. In colour it is very similar; the head and pronotum are palest, the scutellum pale ochraceous, and the hemelytra more or less shaded with pale fuliginous; the pronotum has usually two fuliginous spots both on the anterior and posterior margins, though these are sometimes partly and often entirely absent, and the same remark applies to two fuliginous spots at the base of the scutellum; the interocular space has a distinct central longitudinal incised line.

Length 10 to 12½ millim.

Hab. Bombay (*Dixon*). Probably generally distributed throughout British India. Burma: Bhámo (*Fea*).—Widely distributed in the Ethiopian Region.

Subfamily II. PLEINÆ.

Pleida, *Stål, Hem. Afr.* iii, p. 192 (1865).
Pleinæ, *Kirk. Tr. E. S.* 1897, p. 395; *ante* p. 40.

Of these minute insects we know comparatively little. Of the genus *Plea* four species are here enumerated, a totally inadequate record for British India, and one which will be considerably augmented when more attention is paid to the collection and observation of these small creatures.

Genus PLEA.

Plea, *Leach, Tr. Linn. Soc.* xii, p. 11 (1817); *Saund. Hem. Het. Brit. Islds.* p. 329 (1892); *Kirk. Wien. ent. Zeit.* xxiii, p. 126 (1904).
Ploa, *Stephens, Cat. Brit. Ins.* ii, p. 354 (1829).
Ploea, *Dougl. & Scott, Cat. Brit. Hem.* p. 61 (1876).

Type, *P. minutissima*, Fabr., a Palæarctic species*.

Distribution. Palæarctic and Oriental Regions; probably more widely distributed.

Body not quite twice as long as wide; head broad, eyes widely separated; rostrum three-jointed; pronotum rounded anteriorly, lateral margins short, base considerably posteriorly produced; scutellum small, triangular; tegmina short, deflected posteriorly and with no distinct membrane, a small portion is divided by a suture near the exterior basal angle, which by some entomologists has been regarded as homologous to an embolium; legs simple, tarsi two-jointed.

1527. **Plea liturata**, *Fieb. Abh. böhm. Ges. Wiss.* (5) iii, p. 297, tab. 11, figs. 4–6 (1845).

I only know this species by Fieber's description and figure, both of which are reproduced:—"Front with two short dashes, eyes brown; a small black spot near each lateral angle and a similar one at central base of pronotum; corium with a triangular transverse fascia and a brown spot at the apex. Dirty yellowish punctured with brown; two short brown dashes on middle of front between eyes; pronotum near the anterior margin with two transverse callosities, the shoulder-angles and a protuberance on the middle of the hind margin with a small black spot; scutellum dirty yellow, with two longitudinal stripes broad at base and transverse behind; tegmina posteriorly almost perpendicularly truncate, rather more highly arched behind than before, and a brown band with blackish dots in punctures extending to terminal angle of clavus, broad before the middle of outer border, internally oblique and triangularly narrowed; apex of tegmina with an almost quadrangular brown spot; underside brownish-yellow; legs yellowish-white."

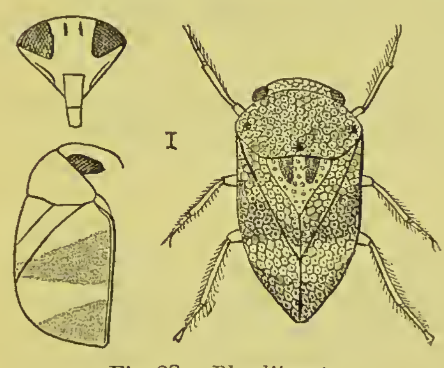


Fig. 28.—*Plea liturata.*

Length about 2 millim.

Hab. "Ostindien" (*Dr. Helfer*).

* M'Gregor and Kirkaldy (Tr. Perthshire Soc. 1899, p. 5) have proposed, for what they consider valid reason in the vexed question of priority in nomenclature, that this species should be renamed *P. leachi*. I have, however, here retained the well-known name.

1528. **Plea frontalis**, *Fieb. Abh. böhm. Ges. Wiss.* (5) iii, p. 296, taf. 1, ff. 36–39 (1845); *Kirk. Wien. ent. Zeit.* xvii, p. 141 (1898); *id. tom. cit.* xxiii, p. 128 (1904).

This is another species I only know by Fieber's description and figures.

"Front with three short dashes, two spots on back of neck, eyes reddish-brown; scutellum yellowish-white; clavus with a brown spot in the terminal angles; posterior half of corium apparently covered with brown dots. On the vertex two pale brown approximate oval spots; on the front two pale brown dashes, between which and somewhat lower is a shorter one; terminal joint of the sheath of the rostrum black, basal joint brown; eyes flattened, reddish-brown; pronotum and scutellum unspotted like the tegmina, with shallow punctures, the intermediate spaces smooth, almost as if polished, hairless; tegmina rather higher arched behind than in front; in the terminal angles of the corium a little yellowish-brown spot; the posterior half of tegmina appears brownish, caused by dots in punctures; tegmina obliquely truncate behind, and with a series of fine brownish dots in the 'gutter' near the raised marginal keel, the margin hidden by the overarching projecting sides; underside pitchy-brown; legs yellowish-white, apices of tarsi brown."

Length 2 millim.

Hab. "Ostindien" (*Dr. Helfer*). Bengal, Pondicherry, Burma; Rangoon (*fide Kirkaldy*).—Cochin-China (*fide Kirkaldy*).

1529. **Plea pallescens**, sp. n.

Above pale stramineous, the central posterior disk of pronotum apparently discoloured; pronotum and corium coarsely punctate; scutellum much less or little punctate and more ochraceous in hue; basal margin of head narrowly black; front practically unspotted; body beneath piceous, legs pale stramineous; base of pronotum centrally slightly gibbous, the posterior pronotal margin carinate.

Length 1½ millim.

Hab. Calcutta Tanks.

1530. **Plea buenoi**, *Kirk. Wien. ent. Zeit.* xxiii, p. 128 (1904).

Strongly rather coarsely but not reticulately punctured, pale yellowish, rather fuliginous; head with a very short longitudinal streak almost like a spot on the front, and with two very small spots near the front end of the streak; head between the eyes about as broad as the eyes.

Length 1·8; breadth 1·1 millim.

Hab. India; Pondicherry (*Coll. Kirkaldy*).

I know nothing more of this species than the description which is here translated from the German in which it is published.

Family CORIXIDÆ.

Corisides, *Amy. & Serv. Hém.* p. 444 (1843).
Corisæ, *Fieb. Eur. Hem.* p. 22 (1861).
Corixina, Corixidæ, and Sigaridæ, *Dougl. & Scott, Brit. Hem.* pp. 49 & 50 (1865).
Sigarida, *Stål, Hem. Afr.* iii, p. 193 (1865).

Body depressed; head broad, as broad or broader than the thorax; ocelli none; rostrum short, concealed; antennæ short, inserted under the margins of the head; thorax transverse; hemelytra complete; legs natatorial, the posterior setose; anterior tarsi one-jointed.

Synopsis of Genera.

A. Antennæ four-jointed; scutellum covered.... CORIXA, p. 49.
B. Antennæ three-jointed; scutellum not covered MICRONECTA, p. 50.

Genus CORIXA.

Corixa, *Geoffr. Hist. abrég. Ins.* p. 477 (1762); *Burm. Handb. Ent.* p. 186 (1835).
Corisa, *Amy. & Serv. Hém.* p. 445 (1843).
Sigara, *Fabr. Syst. Ent.* p. 691 (1775), part.

Type, *C. geoffroyi*, Leach, a Palæarctic species.
Distribution. Almost universally distributed.
The salient characters, as given in the generic synopsis (*supra*), will suffice here for purposes of identification. The genus is probably of world-wide distribution.

1531. **Corixa hieroglyphica**, *Duf. Hem.* p. 86, ff. 85-87 (1833); *Fieb. Eur. Hem.* p. 93 (1861); *Saund. Hem. Het. Brit. Islds.* p. 334 (1892); *Kirk. Entomologist*, 1898, p. 3.

Frontal impression of the male very deep, extending between the eyes in a well-defined arch; greenish or yellowish-grey; pronotum with seven or eight transverse black lines, which are finely rastrate; clavus rastrate, thickly mottled with short irregular black lines, the base pale; corium not rastrate, punctured, with short transverse fragmentary dark markings arranged in three or four series; legs entirely pale; palæ of ♂ straight on the anterior edge, regularly curved on the posterior.

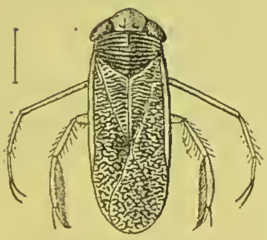


Fig. 29.
Corixa hieroglyphica.

Length $5\frac{1}{2}$ to $6\frac{1}{2}$ millim.

Hab. Assam: Khási Hills (*fide Kirkaldy*). North Bengal (*Brit. Mus.*). Bombay (*Brit. Mus.*). Yarkand (*Stoliczka*).—A common Palæarctic species, and also found in North America.

Genus MICRONECTA.

Micronecta, *Kirk. Entomologist*, 1897, p. 260.
Sigara, *Fabr. Ent. Syst.* iv, p. 59 (1794), part.; *id. Syst. Rhyng.* p. 104 (1803), part.

Type, *M. minutissima*, Linn., a Palæarctic species.
Distribution. Palæarctic and Oriental Regions. Probably much more widely distributed.

This genus, long known under the name of *Sigara*, is at once distinguished from *Corixa* by the exposed scutellum and the three-jointed antennæ. In distribution it is probably cosmopolitan.

1532. **Micronecta striata**, *Fieb.* (Sigara) (*nec Fabr.*) *Abh. k. böhm. Ges. Wiss.* v, 3, p. 292, taf. i, ff. 22–24 (1844); *Kirk.* (Micronecta) *Entomologist*, 1898, p. 3.
Corixa albifrons, *Motsch. Bull. Soc. Nat. Mosc.* xxxvi, p. 94 (1863).
Corixa ovivora, *Westw. Proc. Ent. Soc.* 1871, p. iv; *Kirk.* (Sigara) *Entomologist*, 1897, p. 238.
Sigara siva, *Kirk. Entomologist*, 1897, p. 240.

Fig. 30.
Micronecta striata.

Head pale yellow, somewhat discoloured at base; pronotum with the anterior and posterior margins and a central transverse line black; hemelytra with longitudinal black lines; body beneath and legs uniformly pale yellow.

Length 3 to 4 millim.

Hab. Calcutta (*Ind. Mus.*). Madras Presidency; Canara. Ceylon (*Coll. Horvath*).

Mr. N. Annandale, in forwarding me specimens of this species from Calcutta, wrote:—"In October they flew to my lamp in numbers every day, evidently coming from a 'tank' a few hundred yards away. Now (November) they are far less numerous. The interesting point is that my rooms are at the top of a house three stories high, and that therefore these insects must have a lofty flight. I have not seen them at the tanks or the story below, where I dine about once a week." Under the name of *Corixa ovivora* (*supra*) they were reported as destructive to the ova of fishes.

1533. **Micronecta haliploides**, *Horv. Ann. Mus. Nat. Hung.* ii, p. 594 (1904).

Oblong-ovate, convex, whitish-testaceous, shining; head a little broader than pronotum, anteriorly moderately produced, vertex levigate, medially distinctly longer than it is on each side near eyes, and with a medial minute basal fuscous tubercle; pronotum short,

with a transverse interrupted medial fuscous line, anterior and posterior margins somewhat acute, nearly parallel, lateral margins almost none; scutellum ferrugineo-testaceous; hemelytra with the margins broadly testaceous-white; scutellum (clavus excepted) griseo-testaceous, strongly and remotely blackly punctate; costal margin palely flavo-testaceous, before and behind middle obsoletely blackly speckled; subcostal "fossula" long, nearly extending to apex of hemelytra; apex of right hemelytra marked with two small black arcuated spots; posterior tibiæ above exterior margins, posterior tarsi, and sometimes a percurrent line above black.

Length $2\frac{1}{2}$ millim.

Hab. Ceylon; Colombo (*Mus. Hongrois*).

Suborder *HOMOPTERA*.

The principal distinguishing characters of the Homoptera have already been described in our introduction to the whole order Rhynchota (vol. i. pp. xxv & xxxvi), and it is unnecessary to allude further to them here. Our knowledge of the different families composing the suborder is much less complete at present than our information respecting the Heteroptera. Of the Cicadidæ we have ample collections, and those of continental India and Ceylon are adequately represented, though we may expect many undescribed species to be eventually discovered in the eastern confines of our faunistic area and in the islands of the Indian Ocean. The Fulgoridæ are fairly well known as regards the genera and species of the larger and more showy insects, but among the subfamilies which comprise the smaller and more obscure species very much remains to be done. The Membracidæ are less known and worked than the Fulgoridæ, and a similar remark applies to the Cercopidæ; while the Jassidæ are practically unworked and unrecorded, and probably will prove to be the most extensive Family of the Homoptera.

As regards structural characters and the terms used in referring to them, the Introduction has already dealt with most; those specially or exclusively applicable to the Homoptera are when necessary supplied with diagrams and explanatory details as introductions to each of the families as we come to them in these pages.

The classification of the Homoptera is still an open question, and great diversity of opinion exists as to the number of Families to be recognized in its division. Westwood (Modern Class. Ins. ii. p. 418) with excellent judgment and caution divided the Homoptera into three main divisions, viz.:—

1. Trimera. Tarsi 3-jointed; antennæ minute, setigerous; wings areolate.

2. Dimera. Tarsi 2-jointed; antennæ moderate, filiform, 5–10-jointed; wings subareolate.

3. Monomera. Tarsi 1-jointed; antennæ 6–25-jointed; wings not areolate.

After an interval of nearly sixty years, Sharp (Cambr. Nat. Hist. vi. p. 544) practically adopts this division, though he does

not absolutely follow it, and points out again that the *Dimera* consist of Psyllidæ, Aphidæ, and Aleurodidæ, and the *Monomera* of Coccidæ only. These last two divisions are usually grouped together under the names of either *Phytophthires* or *Sternorhyncha*, and the first, with which we now only deal, may be still known as *Trimera**, or, as written by others, the "Auchenorrhynchons Homoptera."

The division of this section of the Homoptera into families has prodnced much diversity of opinion among entomologists, and it seems necessary to repeat that as these Rhynchotal volumes are faunistic and not taxonomical in their aim, it is unnecesary to enter into a purely classificatory discussion.

Westwood recognized only three families, Cicadidæ, Fulgoridæ, and Cercopidæ. Stål's division included four, Stridulantea, Cercopida, Jassida (including Membracida), and Fulgorida, in which view he is supported by so good an authority as Hansen. Most modern writers consider the Membracidæ a distinct family, and thus recognize five families in all, a course with which I fall in line. It may be mentioned that Pascoe (A. M. N. H. [5] ix. p. 442) proposes thirteen families; aud Edwards (Hem. Hom. Brit. Islds.), excluding *Psyllina*, euumerates fifteen.

Hansen (Entomol. Tidskr. 1890, p. 19) has written an excellent memoir on the four families he recognizes as belonging to this section, founded on considerations drawn principally from the structnre of the antennæ and legs and from the position of the spiracles. As much of this valuable information is based on minute and microscopical investigation I have added his observations to the descriptions of the different families, and for the synopsis relied more largely on Stål, who was again the pioneer in this field, and whose work enabled the Homoptera to be adequately understood. In treating the Membracidæ as a distinct family, I, in common with other authorities, differ from the views of Stål and Hansen, though possibly on morphological grounds these authors may be quite right in relegating the Membracids to a subfamily of the Jassidæ.

Synopsis of the Families of the Homoptera.

A. Ocelli three, placed on disk of vertex.
 a. Antennæ composed of a short basal joint, surmounted by a hair-like process divided into about five joints; anterior femora incrassated and generally spinose beneath; abdomen in males with a sonorous apparatus on each side of base .... **Cicadidæ.**

B. Ocelli two (rarely three or entirely absent).
 b. Ocelli placed beneath or near the eyes, usually in the cavities of the cheeks.

* This is a not perfectly constant character, as in some Cicadas the tarsal joints are only two.

a. Antennæ very variable in form, placed beneath the eyes, usually of two joints terminated by a very fine hair.

a'. Pronotum neither armed nor unusually developed .... **Fulgoridæ.**

c. Ocelli placed between the eyes.

b. Antennæ inserted in front of and between eyes.

a². Pronotum prolonged backwards into a hood or process of variable form .... **Membracidæ.**

d. Ocelli (occasionally absent) placed on vertex.

a³. Pronotum not prolonged beyond base of abdomen.

c. Posterior tibiæ armed with one or two spines, and with a cluster of spinules at apex ...... **Cercopidæ.**

e. Ocelli placed on front margin of head, usually almost in a line with front of eyes.

d. Posterior tibiæ with a double series of spines beneath.... .... **Jassidæ.**

Family CICADIDÆ.

Stridulantes, *Latr. Fam. Nat. Règne An.* p. 426 (1825); *Amy. & Serv. Hém.* p. 458 (1843).
Stridulantia, *Burm. Handb.* ii, 1, pp. 102 & 170 (1835); *Stål, Hem. Afr.* iv, p. 1 (1866).
Cicadidæ. *Westw. Intr. Mod. Class. Ins.* ii, p. 420 (1840); *Dist. Mon. Orient. Cicad.* p. 1 (1889).
Cicadariæ, *Pack.* (*nec Latr.*) *Guide Study Ins.* ed. v. p. 533 (1876).

Ocelli three in number and placed on the disk of vertex of head; antennæ short, inserted close to eyes and composed of seven joints*; head short, broad, and transverse, terminating beneath in an elongated rostrum composed of three joints; thorax large; pronotum short and transverse, with two oblique discal incisures or furrows on each side; mesonotum (by some writers referred to as scutellum) very large and terminating posteriorly in a small basal cruciform elevation (which has sometimes been termed

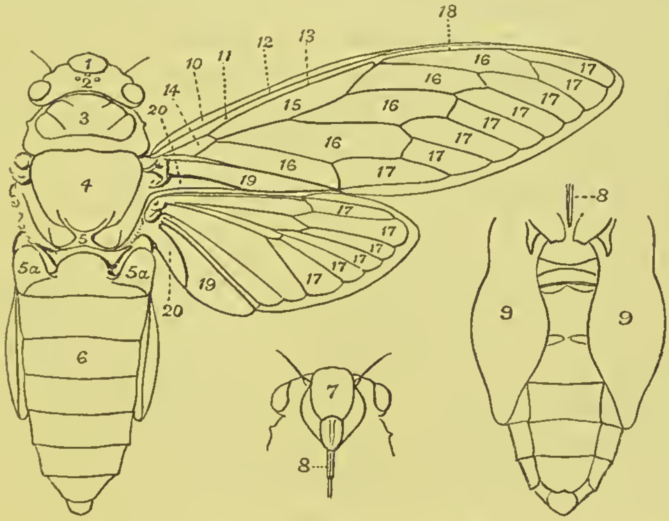


Fig. 31.—*Platylomia radha*, Dist.

Body.		*Tegmina and Wings.*	
1. Front of head.	6. Abdomen.	10. Costal membrane.	16. Ulnar areas.
2. Vertex of head.	7. Face on head beneath.	11. Costal area.	17. Apical areas.
3. Pronotum.	8. Rostrum.	12. Costal vein.	18. Postcostal area.
4. Mesonotum.	9. Opercula.	13. Radial vein.	19. Claval area.
5. Cruciform elevation.		14. Basal cell.	20. Clavus.
5a. Tympanal coverings.		15. Radial area.	

* This includes the two joints of the peduncle or basal joint; the flagellum consists of five joints, and, according to Hansen, on the underside of the first and second joints there is a very large number of sensory organs, and on the last three joints he has found a few of the smaller examples of these organs.

the metathoracic cross); abdomen consisting of six segments and an anal appendage; anterior femora incrassated and nearly always more or less spinose beneath; tegmina and wings usually hyaline, sometimes opaque, their venation distinct and usually furcate in ramification, but occasionally reticulate. To these characters may be added those given by Hansen, viz.: no empodium; second pair of abdominal spiracles placed in a transverse ventral furrow, looking anteriorly and medianly; third to seventh pairs placed in the sternites, not in the pleura.

The terms used in subsequent descriptions for structural details are explained in the accompanying figure (p. 55).

The Cicadidæ possess a distinctive attribute in their loud stridulation, which is, however, confined to the males. Xenarchus long since wrote, "Happy the Cicadas's lives, for they all have voiceless wives." The sound given forth varies in intensity, but is scarcely to be described as a musical production; it has been differently described by travellers in various parts of the world as resembling a railway-whistle, a knife-grinder, razor-grinder, &c., while some field-naturalists maintain that the noise is distributed with the power of a ventriloquist, and that it is difficult to locate the insects by their cries; the writer's experience, however, both in the Ethiopian and Oriental Regions, scarcely confirms this hypothesis. The structure and mechanism of the sound-producing apparatus have been studied and described by a number of entomologists and other naturalists, of whom we may mention the names of Réaumur, Goureau and Solier, Dugès, Landois, Mayer, Carlet, and Jno. C. Galton. Of these perhaps Carlet has given us the best information, or at all events the foundation on which others have worked. The sound-producing apparatus is covered beneath by two flaps, which, as pointed out by Westwood, are, "in fact, the dilated sides of the metasternum;" these have been sometimes incorrectly referred to as "drums," but are really covering-flaps, or, as they are generally called (and in this volume alluded to), opercula. These structures in shape, length, and direction frequently afford the most reliable differentiation for species, and in the Dundubiaria exhibit the most striking variety. The real drums or tympana are laterally situate near the upper surface of the base of the abdomen, and are either concealed by tympanal coverings as in the Cicadinæ, partially concealed as in the Gæaninæ, or completely exposed as in the Tibicininæ. The females are provided with a strongly developed ovipositor, by which they are enabled to pierce the branches of trees and there deposit their eggs, which in some cases amount to a very large number.

The Cicadas are victims to many enemies and are apparently defenceless creatures. Among their persecutors may be mentioned species of *Mantis* (Orthoptera), spiders, dragon-flies, hornets, wasps, *Asilidæ* (Diptera), and many birds; they have also been found to be devoured by trout both in Japan and New Zealand, and are used as food by some of the primitive races of mankind. In India, as I am informed by Mr. R. M. Dixon, they afford prey to the Lesser Kestrel (*Tinnunculus cenchris*) and the Shikra (*Astur*

badius), whilst a certain number are also killed by the Ashy Drongo (*Dicrurus longicaudatus*) and the Jungle-Crow (*Corvus macrorhynchus*). Their worst enemy, however, according to my informant, appears to be a lizard (*Calotes versicolor*), which kills and devours a large number.

Probably about one thousand species have been described from various parts of the world, but a complete synonymic catalogue on which I have been long engaged is not yet completed. In Britain we possess one species, and that a rare insect, but in the Tropics, and especially the Eastern Tropics, they are abundant. Their life-histories are little known, and should prove to be of the most interesting character, for of one Nearctic species, *Tibicina septendecim*, it seems to be conclusively proved that in its immature condition it lives beneath the surface of the ground for a period of some seventeen years, during which it feeds on roots, &c., and that it has but a short life as a perfect winged insect.

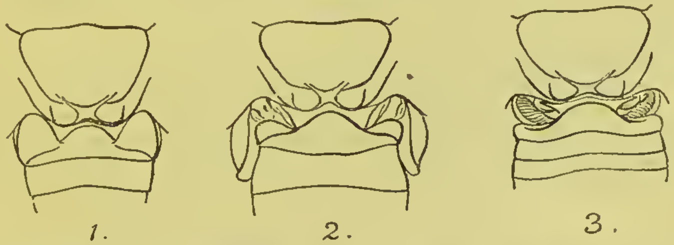
Some considerable difference in generic arrangement will be found in the enumeration of the Cicadidæ in this volume and in my 'Monograph of the Oriental Cicadidæ.' This has been brought about, or rather necessitated, by a thorough revision of all the known genera, and an attempt to fix their true characters from an examination of the structure of their original types. I have constructed synopses of all the genera I have seen (and I have been able to examine most) from all parts of the world, and these have have been published in the 'Annals and Magazine of Nat. Hist.' during the last two years.

The Cicadidæ in my view may be divided into three distinct subfamilies:—

A. Tympanal coverings present.
  a. Tympanal coverings entirely concealing tympanal orifices .... *Cicadinæ.*
  aa. Tympanal coverings imperfect, more or less exposing orifices .... *Gæaninæ.*
B. Tympanal coverings absent .... *Tibicininæ.*

These characters are fully shown in the following illustration:—

Fig. 32.



1. *Dundubia intemerata*, Walk. With tympanal coverings complete .... *Cicadinæ.*
2. *Terpnosia ganesa*, Dist. With tympanal coverings rudimentary .... *Gæaninæ.*
3. *Quintilia subvittata*, Walk. With tympanal coverings entirely absent.......................... *Tibicininæ.*

Subfamily I. CICADINÆ.

Cicadinæ, *Dist. Mon. Orient. Cicad.* p. 3 (1889).

This subfamily, recognized by the complete covering of the tympanal orifices by the tympanal flaps, has a world-wide distribution, but is more strongly represented in the Eastern than in the Western Hemisphere; it is also in the first that the genera containing the most gigantic species occur, illustrated in this fauna by *Cryptotympana*, *Platylomia*, and *Pomponia*. These genera are not found in the Ethiopian Region, and it is only in Madagascar where a similar development in size and colour occurs; with the exception of this island, the Oriental and Malayan Regions may be accepted as the headquarters of the Cicadinæ.

Division *POLYNEURARIA.*

Polyneuraria, *Dist. A. M. N. H.* (7) xiv, p. 293 (1904).

Lateral margins of the pronotum ampliated, and more or less angularly produced. Head (including eyes) about as wide or wider than base of mesonotum, or sometimes little more than two-thirds of its width; costal membrane of tegmina sometimes much arched and dilated, the apical areas usually eight in number, but in a few genera smaller in size and much more numerous; tegmina varying in hue from pale hyaline to dark opaque.

Synopsis of Genera.

A. Tegmina with eight apical areas.
  a. Head (including eyes) about as wide or wider than base of mesonotum; not frontally produced, more or less truncate and deflected in front of eyes; costal membrane of tegmina not prominently dilated nor arched at base .... PLATYPLEURA, p. 58.
  b. Head (including eyes) only about or little more than two-thirds the width of base of mesonotum; costal membrane of tegmina prominently arched at base and dilated .... PYCNA, p. 71.
B. Tegmina with numerous, always more than eight apical areas.
  a. Tegmina semihyaline, only more or less reticulately veined on apical area; opercula not quite reaching middle of abdomen .. ANGAMIANA, p. 72.
  Tegmina opaque; venation on apical half dense and furcate; opercula not extending beyond basal segment .... POLYNEURA, p. 73.

Genus PLATYPLEURA.

Platypleura, *Amy. & Serv. Hém.* p. 465 (1843); *Stål, Hem. Afr.* iv, pp. 2 & 9 (1866); *Atkins. J. A. S. Beng.* iv, p. 144 (1866); *Dist. Mon. Orient. Cicad.* p. 19 (1889).
Subgen. Oxypleura, *Amy. & Serv. Hém.* p. 469 (1843).

Subgen. Pœcilopsaltria, *Stål, Hem. Afr.* iv, p. 2 (1866); *Dist. Mon. Orient. Cicad.* p. 5 (1889).

Type. Genus *Platypleura, P. stridula*, Linn.; a S. African species.
Subgen. *Oxypleura, O. clara*, Amy. & Serv.; an Ethiopian species.
Subgen. *Pœcilopsaltria, P. octoguttata*, Fabr.

Distribution. Ethiopian, Oriental, Malayan, and Eastern Palæarctic Regions *.

Body robust, somewhat short; abdomen in male about as long as space between apex of head and base of cruciform elevation; head broad, truncate anteriorly, including eyes a little or scarcely broader than base of mesonotum, ocelli about twice and sometimes thrice the distance from eyes as from each other, face moderately convex not prominent above; pronotum with the lateral margins ampliated or laminately medially angulate; anterior femora not prominently spined; metasternum with a central elevated plate-like process, which is centrally sulcated and posteriorly somewhat sinuately truncate; tympana practically concealed by the tympanal flaps or coverings; opercula in male short, broad, their apices more or less convexly rounded; tegmina and wings either hyaline or more or less opaquely coloured, tegmina with the basal cell a little longer than broad; the costal membrane only moderately dilated or arched at base, apical areas eight in number.

Oxypleura, Amy. & Serv., merely includes species with hyaline, non-opaque tegmina and wings: *Pœcilopsaltria*, Stål, I have hitherto regarded as distinct from *Platypleura* by the slightly greater width of the head including eyes, but I now think that difference alone is too slight for generic separation; it may, however, be stated that the generic form described by Stål is more dominant in the Oriental Region, while the character of typical *Platypleura* is a marked feature in the Ethiopian species.

I. Head including eyes a little wider than base of mesonotum.

a. *Breadth between pronotal angles greater than space between apex of head and base of cruciform elevation.*

b. *Tegmina and wings hyaline, the first sometimes more or less spotted.*

c. *Pronotal margins medially angularly produced.*

d. *Rostrum extending to half the length of abdomen.*

1534. **Platypleura bufo**, *Walk.* (Oxyplenra) *List Hom.* i, p. 27 (1850); *Atkins.* (Platypleura) *J. A. S. Beng.* liii, p. 216 (1885); *id. J. A. S. Beng.* lv, p. 149 (1886); *Dist.* (Pœcilopsaltria) *Mon. Orient. Cicad.* p. 5, t. viii, f. 20 *a, b* (1889).

Head and pronotum brownish ochraceous; head with two some-

* Goding and Froggatt have recently described a species from Northern Australia as belonging to *Platypleura*. They, however, describe it as similar to the Madagascar species *P. guttulata*, Sign., which I place in my genus *Yanga*.

what broken black transverse fasciæ, the first at anterior margin of front, the second between eyes; pronotum with the posterior margin much paler, the lateral margins a little darker, two central lines on disk and the incisures black; mesonotum purplish-brown, with two small central anterior obconical spots and the lateral areas black; abdomen piceous, segmental margins pale castaneous, tympanal coverings and apex brownish-ochraceous; sternum and legs brownish-ochraceous; opercula pale with their disks piceous; tegmina and wings hyaline slightly tinged with ochraceous, veins brownish-ochraceous; tegmina with costal membrane and area, base including basal cell, and extreme base of wings brownish-ochraceous.

Length excl. tegm. 29; exp. tegm. 86; breadth between pronot. angl. 19 millim.

Hab. "East India" (*Inglis, Brit. Mus.*).

I only know this species by the unique type in the British Museum.

P. bufo is to be recognized by the great breadth of the pronotum.

aa. *Breadth between pronotal angles about equal to space between apex of head and base of cruciform elevation.*

dd. *Rostrum only just passing posterior coxæ.*

1535. **Platypleura mackinnoni,** *Dist. Tr. E. S.* 1904, p. 667, pl. xxix, f. 1 *a, b.*

Head and pronotum ochraceous; head with the lateral margins of front, face (excluding basal spot), anterior lateral margins of vertex, and a broad transverse fascia between eyes (including the area of the ocelli) black; pronotum with the basal margin stramineous, its disk, with a central longitudinal fascia (much broadened at base), and the incisures, black; mesonotum pale castaneous, with two anterior, fused, obconical spots, on each side of which is a longer obconical spot, and a large curved basal spot with its apex prolonged, black; basal cruciform elevation pale castaneous with its central area black; abdomen black, apex and margins of the tympana ochraceous; legs, rostrum, posterior margins of abdominal segments and apical segment (more or less) ochraceous; tegmina pale talc-like, the venation ochraceous on basal half, piceous on apical area, extreme basal area piceous; wings pale hyaline, the venation ochraceous, about basal third piceous streaked with ochraceous.

♂. Opercula almost meeting interiorly, their lateral and posterior margins oblique, their apices reaching the base of the second abdominal segment.

Length excl. tegm., ♂ & ♀, 25; exp. tegm. 75; breadth between pronotal angles 14 millim.

Hab. Mussooree: Dehra Dun (*P. W. Mackinnon*, 18/6/1903).

1536. **Platypleura polita**, *Walk.* (Oxypleura) *List Hom.* i, p. 29 (1850); *Butl. Cist. Entom.* i, p. 196 (1874); *Dist* (Pœcilopsaltria) *Mon. Orient. Cicad.* p. 7, tab. i. f. 16, *a*, *b* (1889).

Head, pronotum, and mesonotum brownish-ochraceous; head with some spots on front and a broken transverse fascia between eyes black; pronotum with one or two central spots and the incisures black; mesonotum with four obconical spots (of which the two central are shortest), a central lanceolate spot, and two small spots in front of cruciform elevation black; abdomen black, with the tympanal coverings, posterior margins of most of the segments, and a spot on each side of anal segment ochraceous;

Fig. 33.—*Platypleura polita.*

head beneath, sternum, legs, and opercula ochraceous, a narrow fascia between eyes, and interior area of opercula, black; abdomen beneath as above, but more castaneous than black; tegmina and wings pale hyaline, the veins brownish-ochraceous; tegmina with transverse veins at bases of apical areas, costal membrane and area, and sometimes other spots as shown in the above figure, fuscous-brown.

Length excl. tegm. 23; exp. tegm. 70; breadth between pronotal angles 12 to $12\frac{1}{2}$ millim.

Hab. Karwar, Canara, Trivandrum.

cc. *Pronotal margins subtruncate, not medially angulate.*

1537. **Platypleura cervina**, *Walk. List Hom.* i, p. 16 (1850); *Atkins. J. A. S. Beng.* liii, p. 217 (1885); *Dist.* (Pœcilopsaltria) *Mon. Orient. Cicad.* p. 8, tab. v, f. 12 *a*, *b* (1889).
Platypleura straminea, *Walk. List Hom.* i, p. 17 (1850).

Brownish-ochraceous, lateral and posterior margins of pronotum and abdomen a little paler, and mesonotum a little darker in hue; mesonotum with two obscure central anterior obconical spots; tegmina and wings hyaline strongly tinged with pale ochraceous, the veins of both and costal membranes and area of tegmina ochraceous; transverse veins at bases of third, fourth, fifth, seventh, and eighth apical areas to tegmina margined with pale fuscous, and sometimes a small spot of the same colour on the

longitudinal veins to the second and third apical areas; lateral pronotal angles a little ampliate, but subtruncate, not medially angulate.

Length excl. tegm. 18; exp. tegm. 50; breadth between pronotal angles 9 millim.

Hab. North Bengal (*Miss Campbell, Brit. Mus.*).

Apparently a scarce species; my own collection contains one unlocalized male specimen.

bb. *Tegmina and wings hyaline, but with basal areas of both more or less opaque.*

c'. *Pronotal margins ampliated, but not medially angulate.*

1538. **Platypleura basialba**, *Walk.* (Oxypleura) *List Hom.* i, p. 26 (1850); *Butl.* (Platypleura) *Cist. Ent.* i, p. 191 (1874); *Atkins. J. A. S. Beng.* lv, p. 147 (1886); *Dist.* (Pœcilopsaltria) *Mon. Orient. Cicad.* p. 9, tab. viii, f. 19 *a, b* (1889).

Head olivaceous, base of front, anterior margins of vertex, and a narrow fascia between eyes black; pronotum pale tawny brown, lateral and posterior margins paler, a short central discal line, two posterior small central spots, incisures, and edge of lateral margins black; mesonotum pale brown, with four obconical spots (the two central ones shortest), a central lanceolate spot, and two small rounded spots in front of cruciform elevation black; abdomen above black, the tympanal coverings and segmental margins pale olivaceous; body beneath and legs pale ochraceous; a somewhat imperfect fascia between eyes, crossing base of face, black; abdomen beneath very strongly greyishly pilose, more or less shaded with piceous; tegmina and wings hyaline; tegmina with the venation, costal area and membrane, and basal cell pale olivaceous, basal third pale obscure fuscous with a central cretaceous fascia; wings with nearly basal half black, and the veins brownish; body above and beneath more or less greyishly pilose.

Length excl. tegm. 21; exp. tegm. 62; breadth between pronotal angles 11 millim.

Hab. North Bengal (*Miss Campbell, Brit. Mus.*); Dehra Dun (*Mackinnon*); Mhow (*Forsayeth, Brit. Mus.*).

c². *Pronotal margins medially angulate.*

1539. **Platypleura cœlebs**, *Stål, Tr. E. S.* (3) i, p. 573 (1863); *Atkins. J. A. S. Beng.* liii, p. 213 (1885); *Dist.* (Pœcilopsaltria) *Mon. Orient. Cicad.* p. 12, tab. i. f. 12 *a, b* (1889).

Head ochraceous; front (excluding a central spot), lateral margins of vertex, and a transverse fascia between eyes black; pronotum pale castaneous, lateral and posterior margins stramineous; mesonotum castaneous, with four large obconical spots (the two central ones smallest), a central lanceolate spot, and two small spots in front of cruciform elevation black; abdomen black, the posterior segmental margins and tympanal coverings ochraceous; head

beneath, sternum, legs, rostrum, and opercula ochraceous; a transverse fascia between eyes, inner margins of eyes, and apex of rostrum black; abdomen beneath castaneous, posterior segmental margins and apex ochraceous: tegmina hyaline or talc-like, about basal half creamy opaque, shaded with pale fuscous, and more or less defined by an indistinct curved pale fuscous fascia, costal membrane and area and the veins dark ochraceous, transverse veins at bases of second, third, fourth, fifth, and seventh apical areas slightly infuscate; wings stramineous for about two-thirds their area from base, outwardly margined with fuscous, remaining area pale hyaline, the veins dark ochraceous; rostrum passing posterior coxæ.

Length excl. tegm. 22 to 23; exp. tegm. 64 to 68; breadth between pronotal angles 11 millim.

Hab. Deccan (*Coll. Dist.*). China; Chusan (*Ind. Mus.*).

bbb. *Tegmina and wings with the base of first and the whole of second opaque.*

c³. *Pronotal margins ampliate, very obtusely medially angulate.*

d′. *Rostrum reaching middle of abdomen.*

1540. **Platypleura watsoni,** *Dist.* (Pœcilopsaltria) *A. M. N. H.* (6) xx, p. 18 (1897).

♀. Head, pronotum, and mesonotum brownish-ochraceous; head with transverse margin to front, a spot above base of antennæ, area of ocelli, and transverse fascia connecting same with eyes black; pronotum with incisures and two central fasciæ black; mesonotum with four obconical spots (the central two shortest), a

Fig. 34.—*Platypleura watsoni*, ♀.

central lanceolate spot, and two small spots in front of cruciform elevation black; abdomen piceous, ochraceously pilose, segmental margins ochraceous; sternum, legs, rostrum, and opercula dull ochraceous; face with the central sulcation and a transverse fascia between eyes black; abdomen beneath as above, but not ochraceously pilose; tegmina talc-like, veins brown, brownish at base, with three irregular transverse brown fasciæ enclosing rounded creamy spots, a double row of outer marginal spots situate on

longitudinal veins to apical areas; wings stramineous, the apical margin and a transverse fascia before apex dark castaneous, these castaneous markings enclose a large subapical stramineous spot. Rostrum reaching apex of second abdominal segment.

Length excl. tegm., ♀, 22; exp. tegm. 62; breadth between pronotal angles 10 millim.

Hab. Burma, North Chin Hills (*Watson*).

d². *Rostrum just passing posterior coxæ.*

1541. **Platypleura westwoodi,** *Stål, Tr. E. S.* (3) i. p. 571 (1863); *Dist.* (Pœcilopsaltria) *Mon. Orient. Cicad.* p. 15, tab. i, f. 18 *a, b* (1889).

Body olivaceous, thickly greyishly pilose; head with a narrow, obscure, black fascia between eyes; pronotum with the incisures, two small central posterior spots, and outer edges of lateral marginal areas black; mesonotum with four obconical black spots, the central spots shortest, a central lanceolate spot and two small rounded spots in front of cruciform elevation black; basal abdominal segmental margins black; head beneath with an obscure black fascia between eyes; tegmina semihyaline, basal third pale fuscous, the base and basal area paler, the last with three fuscous spots, costal membrane and area green, venation brown or fuscous, a broad curved fascia crossing beyond cell, a large triangular subapical patch, and broad outer marginal spots fuscous, the last with paler centres; wings bright ochraceous, basal and apical areas (connected on posterior margin) castaneous, two greyish spots on outer margin, one near apex, the other near anal angle.

Length excl. tegm. 25; exp. tegm. 78; breadth between pronotal angles 15 millim.

Hab. Ceylon (*Green*).

c¹. *Pronotal margins distinctly medially angulate.*

d³. *Rostrum only just passing posterior coxæ.*

1542. **Platypleura basi-viridis,** *Walk. List Hom.* i. p. 18 (1850); *Dist.* (Pœcilopsaltria) *Mon. Orient. Cicad.* p. 8, tab. ix, f. 6 *a, b* (1889).

Head and thorax above brownish-ochraceous; head with a large spot on each side of front and a transverse fascia between eyes black; pronotum with the lateral and posterior margins stramineous, a discal angulated spot, two small spots at centre of posterior margin, an oblique spot behind eyes, the incisures and edge of lateral margins, black; mesonotum with four obconical spots (the central ones shortest), a central lanceolate spot, and four small basal spots, black; abdomen black, tympanal coverings and posterior segmental margins ochraceous; body beneath and legs dull ochraceous; central sulcation to face, an irregular fascia between eyes, and apices of rostrum and tarsi black; tegmina

hyaline, basal third semi-opaque, veins and costal membrane brownish, the last with two blackish spots, basal cell brownish with a darker spot, a curved fascia crossing near base, followed by a more waved macular fascia, a dark and outwardly concave macular fascia crossing beyond end of radial area, an oblique fascia on the transverse veins at bases of apical areas extending to half the breadth of tegmina, and a double series of small obscure spots at apices of longitudinal veins to apical areas, dark brownish; wings ochraceous, margins broadly, especially at apex, dark brownish, with a pale marginal cretaceous spot at apex and centre of posterior margin.

Length excl. tegm., ♂, 18; exp. tegm. 52 to 55; breadth between pronotal angles 10 millim.

Hab. Bombay Prov.; Karwar (*Ind. Mus.* and *Coll. Dist.*).

1543. **Platypleura sphinx**, *Walk. List Hom.* i, p. 13 (1850); *Atkins. J. A. S. Beng.* liii, p. 213 (1885); *Dist.* (Pœcilopsaltria) *Mon. Orient. Cicad.* p. 13, tab. viii, f. 16 *a, b, c* (1889).

Body pale tawny-brown, shortly and palely pilose; head with two transverse brown fasciæ; mesonotum with four obconical spots, the inner two very short, the outermost very long, a central longitudinal spot, and two small spots in front of the cruciform elevation, fuscous-brown; tegmina hyaline, talc-like, basal area pale tawny-brown, with the greater part of the radial area and three discal spots hyaline, veins and costal membrane and area pale tawny-brown, a broken oblique fascia at end of ulnar areas and anteriorly continued to apex, and elongate spots at apices of longitudinal veins to apical areas, pale tawny-brown; wings pale tawny-brown, the veins much paler, above basal half of anal area and a broad central fasciate spot pale obscure stramineous, a creamy-white spot on posterior and apical margins.

Length excl. tegm., ♂, 16; exp. tegm. 46; breadth between pronotal angles 8 millim.

Hab. North Bengal (*Campbell & Warwick*, *Brit. Mus.*); Mhow (*Forsayeth*, *Brit. Mus.*).

1544. **Platypleura capitata**, *Oliv.* (Cicada) *Enc. Méth.* v, p. 754, 34, tab. cxii, f. 10 (1790); *Stål* (Pœcilopsaltria), *Berl. ent. Zeit.* x, p. 169 (1866); *Dist. Mon. Orient. Cicad.* p. 18 (1889).
Oxypleura subrufa, *Walk. List Hom.* i, p. 25 (1850); *Atkins.* (Platypleura) *J. A. S. Beng.* liii, p. 216 (1885); *Dist.* (Pœcilopsaltria) *Mon. Orient. Cicad.* p. 9, tab. i, f. 1 *a, b* (1889).
Stoll, Cig. f. 103.

Head and pronotum brownish-ochraceous; head with base and lateral margins of front, anterior margins of vertex, and transverse fascia between eyes black; pronotum with the posterior and lateral margins stramineous, edges of lateral margins and a small obscure central discal spot black; mesonotum pale castaneous, with four obconical spots (the two central shortest), a central elongate spot,

and two small spots in front of the cruciform elevation black; abdomen black, with the posterior segmental margin castaneous, tympanal coverings brownish-ochraceous; body beneath, rostrum, sternum, opercula, and legs ochraceous; central sulcation to face, and an irregular fascia between eyes, black; abdomen beneath castaneous, the posterior segmental margins paler; tegmina hyaline, with about basal third opaque, base, a subbasal oblique fascia, and a shorter transverse fascia near middle umber-brown, space between these fasciæ obscure creamy-white, veins and costal membrane brownish-ochraceous, transverse veins at bases of apical areas infuscated, and some elongate spots on apices of longitudinal veins to apical areas fuscous; wings dark umber-brown, with a central obscure creamy fascia not reaching posterior margin, apical margin, and a spot on posterior margin creamy-white.

Length excl. tegm. 28; exp. tegm. 75; breadth between pronotal angles 14 millim.

Hab. "Southern India" (*Coll. Dist.*). Ceylon; Colombo (*Lewis*).

1545. **Platypleura hampsoni,** *Dist.* (Pœcilopsaltria) *A. M. N. H.* (5) xx, p. 226 (1887); *id. Mon. Orient. Cicad.* p. 11, tab. i, f. 8, *a*, *b* (1889).

♀. Head pale ochraceous, front with basal and linear black markings, vertex with a transverse fascia between eyes and a linear spot near its anterior angles; pronotum greenish-ochraceous, its lateral and posterior margins reddish-ochraceous, a central longitudinal fascia (widened anteriorly and posteriorly), the incisures, and outer borders of lateral marginal areas black; mesonotum greenish-ochraceous, with four obconical spots (the central two smallest), a central lanceolate spot, and two rounded spots in front of cruciform elevation black; abdomen above and beneath black; face black, the transverse striations ochraceous, a black fascia between face and eyes; sternum ochraceously pilose; abdominal segmental margins and anal appendage ochraceous; legs castaneous, streaked or spotted with piceous and ochraceous; tegmina hyaline, venation brown, basal third opaque, with darker transverse markings and a black streak in basal cell, a double irregular series of spots crossing at near middle, a fascia at bases of upper apical areas, and a few small subapical and marginal spots dark brown; wings brownish-ochraceous, paler at apex and very pale across centre, with a white marginal spot near anal angle; veins brown.

Length excl. tegm. 23; exp. tegm. 70; breadth between pronotal angles 13 millim.

Hab. Nilgiri Hills, northern slopes, 3500 and 5000 feet (*Hampson*).

1546. **Platypleura affinis,** *Fabr.* (Tettigonia) *Syst. Rhyng.* p. 37. 22 (1803); *Germ.* (Cicada) *in Thon, Ent. Arch.* ii, 2, p. 1 (1830); *Stål* (Pœcilopsaltria), *Hem. Fabr.* ii, p. 4 (1869); *Atkins.*

J. A. S. Beng. liii, p. 211 (1885); *Dist. Mon. Orient. Cicad.* p. 18 (1889).
Platypleura nicobarica, *Butl. A. M. N. H.* (4) xix, p. 311 (1877); *Atkins. J. A. S. Beng.* liii, p. 213 (1885); *Dist.* (Pœcilopsaltria) *Mon. Orient. Cicad.* p. 12, tab. i, f. 3, *a, b* (1889).
Var. Platypleura distincta, *Atkins. J. A. S. Beng.* liii, p. 233 (1885).

Head, pronotum, and mesonotum brownish-ochraceous; anterior margin of front, a broad fascia between eyes, and edges of the dilated pronotal lateral margins black; mesonotum with four obconical spots (the two central spots shortest), a central lanceolate spot, and two small spots in front of the cruciform elevation black; abdomen black, the posterior segmental margins ochraceous; head beneath, sternum, legs, and rostrum ochraceous; a narrow fascia between eyes, central sulcation, and posterior margin of face black; abdomen beneath dark castaneous, the segmental margins ochraceous; tegmina with about basal half ochraceous and opaque, with two spots on costal membrane, a spot in basal cell and two in radial area dark brown; apical half of tegmina pale hyaline, a fascia not quite crossing beyond radial area, an oblique fascia crossing the apices of the upper three ulnar areas, and an irregular double series of spots near apices of longitudinal veins to apical areas brownish-ochraceous; wings ochraceous, the outer margins and a transverse discal fascia dark brown, a creamy spot on posterior margin.

The var. *distincta*, Atkins., differs by the somewhat smaller and less intense black markings on head and thorax, and by the wings having the subapical discal fascia fused with outer margin.

Length excl. tegm. 25; exp. tegm. 76; breadth between pronotal angles $14\frac{1}{2}$ to 15 millim.

Hab. Nicobar Islands.

d[1]. *Rostrum reaching base of abdomen.*

1547. **Platypleura octoguttata**, *Fabr.* (Tettigonia) *Ent. Syst. Suppl.* p. 515. 22–23 (1798); *id. Syst. Rhyng.* p. 39. 33 (1803); *Coqueb. Ill. Icon. Ins.* i, p. 34, t. 9, f. 1 (1799); *Stål* (Pœcilopsaltria), *Berl. ent. Zeit.* p. 168 (1866); *Dist. Mon. Orient. Cicad.* p. 10, tab. i, f. 5, *a, b* (1899).
Oxypleura sanguiflua, *Walk. List Hom.* i, p. 24 (1850); *id. Ins. Saund. Hom.* p. 2 (1858).

Head ochraceous, margins of front, a transverse fascia between and a spot behind the eyes black; pronotum pale castaneous, the posterior and lateral margins ochraceous, two very small central black spots, and the edges of the lateral margins sometimes black or piceous; mesonotum ochraceous, with four large obconical spots (the two central shortest), a central lanceolate spot, and two spots (sometimes fused) in front of the cruciform elevation black; abdomen black, shortly greyishly pilose, posterior segmental

margins and tympanal coverings dull ochraceous; body beneath and legs dull ochraceous; abdomen thickly greyishly pilose; a transverse fascia between eyes and central sulcation to face, some sternal spots, basal areas of opercula, and apex of rostrum black; tegmina hyaline, about basal half opaque, veins and costal membrane brownish-ochraceous, the last with two brown spots, a basal patch, a broad transverse fascia at about one-third from base and a waved fascia united to it at apex of radial area, transverse veins at bases of apical areas, and a series of small spots near apices of longitudinal veins to apical areas dark chocolate-brown, space between basal fasciæ and a spot near apex of radial area creamy-white; wings dark chocolate-brown, with basal sanguineous rays, and the outer margin (not extending to anal angle) pale white hyaline.

Var. *a.* Wings with a subcostal ochraceous patch.

Var. *b.* Wings ochraceous, the outer area only chocolate-brown, and the sanguineous rays entirely absent.

Length excl. tegm. 24 to 26; exp. tegm. 73 to 85; breadth between pronotal angles 14 millim.

Hab. Panjab; Wazeerabad (*Hearsay*); North Bengal (*Campbell*); Naina Tal (*Stockh. Mus.*). Mussooree (*Mackinnon*); Rajpootana; Mt. Aboo (*Ind. Mus.*). Jodhpoor and Sambalpoor (*Ind. Mus.*). Karachi (*Ind. Mus.*). Bombay (*Leith*). Karwar (*Coll. Dist.*). Coimbatore (*Walhouse*). Nilgiri Hills (*Hampson*). Shivarai Hills (*Bidie & Morris*). Mhow (*Forsayeth, Brit. Mus.*). Ceylon (*Green*).

A very variable species.

bbbb. *Tegmina and wings wholly opaque; pronotal margins medially angulate; rostrum reaching base of abdomen.*

1548. **Platypleura andamana**, *Dist. Tr. E. S.* 1878, p. 174; *Atkins. J. A. S. Beng.* liii, p. 214 (1885); *Dist.* (Pœcilopsaltria) *Mon. Orient. Cicad.* p. 17, tab. i, f. 9, *a*, *b* (1889).

Tawny-brown, pubescent; head with a spot on each side of front and a transverse fascia between eyes black; pronotum with two small central posterior spots and the incisures black; mesonotum with four obconical spots (the two central smallest), a central lanceolate spot, and two small spots in front of cruciform elevation black; abdomen black, posterior segmental margins dull ochraceous and strongly and palely pilose; body beneath and legs brownish-ochraceous; tegmina brown, opaque with pale semi-opaque markings, especially on apical half, basal third thickly covered with pale pubescence and containing five dark brown spots—two in radial area, one at base of third and two in fourth ulnar area, remainder of tegmina less pubescent with numerous greyish-white spots, the most prominent being a transverse series at end of apical area and a waved series commencing about middle of upper ulnar area, where they are very distinct beneath, a double

series of small brown spots near apices of longitudinal veins to apical areas, a dull whitish spot on inner angle of outer margin; wings very pale castaneous, with dark brown outer margin and suffused dark brown discal streaks.

Length excl. tegm. 22 to $24\frac{1}{2}$; exp. tegm. $76\frac{1}{2}$ to 84; breadth between pronotal angles 14 millim.

Hab. Andaman Islds. (*De Roepstorff*).

II. Head including eyes not, or scarcely, broader than base of mesonotum; pronotal margins medially angulate.

a. *Rostrum passing base of abdomen.*

1549. **Platypleura nobilis**, *Germ.* (Cicada) *in Thon, Ent. Arch.* ii, 2, p. 2 (1830); *Stål* (Platypleura), *Öfv. Vet.-Ak. Förh.* 1862, p. 479; *Atkins. J. A. S. Beng.* liii, p. 215 (1885); *Dist. Mon. Orient. Cicad.* p. 21, tab. i, f. 13, *a*, *b* (1889).
Cicada hemiptera, *Guér. Bélang. Voy. Ind.* p. 500 (1834).
Platypleura semilucida, *Walk. List Hom.* i, p. 20 (1850).
Platypleura gemina, *Walk. List Hom.* i, p. 21 (1850).

Head, pronotum, and mesonotum brownish or greenish-ochraceous; head with the inner margins of eyes and a broken fascia between them black; pronotum with a central longitudinal line, the incisures, and outer edges of dilated pronotal areas black; mesonotum with four obconical spots (the two central shortest), a central lanceolate spot, and two small spots in front

Fig. 35.—*Platypleura nobilis.*

of cruciform elevation black; abdomen greenish or brownish-ochraceous, the segmental margins black; body beneath ochraceous; central sulcation to face, fascia between eyes, some sternal spots, metasternum at base of opercula, and apex of rostrum black; tegmina with about basal half creamy-ochraceous, opaque; two spots on costal membrane, basal cell, three spots in radial area, a large spot on claval area, and a broad oblique fascia commencing at end of radial area fuscous; apical half pale hyaline, with a subapical oblique waved fascia and a series of small spots near apices of longitudinal veins to apical areas fuscous; wings dark fuscous-brown, with anal area and nearly apical third pale hyaline,

disk usually but not always with a costal and central oblique ochraceous fascia. Opercula in male internally overlapping.

Length excl. tegm. 15 to 17; exp. tegm. 50 to 60; breadth between pronotal angles 10 to $10\frac{1}{2}$ millim.

Hab. Assam; Garo Hills (*Chennell*). Samagooting (*Ind. Mus.*). Munjpoor (*Ind. Mus.*). Burma; Tavoy (*Coll. Dist.*).—Sumatra. Java.

aa. *Rostrum only just passing posterior coxæ.*

1550. **Platypleura insignis,** *Dist. J. A. S. Beng.* xlviii, p. 39, t. xi, f. 2 (1879); *id. Mon. Orient. Cicad.* p. 22, tab. i, f. 15 (1889).

Allied to *P. nobilis*, but body griseously pubescent; tegmina pale hyaline, with the venation, costal membrane and area, radial area (excepting almost apical half), and a large basal patch extending to about one-third from base fulvous, griseously pubescent; the radial area is hyaline from about centre (where it is darkest) to near apex, which is narrowly fulvous and has a fuscous spot on its outer margin, a double series of small spots near apices of longitudinal veins to apical areas, and an irregular series of small spots at apices of ulnar areas, black; wings pale hyaline, the venation fulvous, and with less than basal half black.

To be separated from *P. nobilis* by the smaller dark basal areas of the tegmina and wings, the rostrum only just passing posterior coxæ, and the opercula in male less inwardly overlapping.

Length excl. tegm. 15; exp. tegm. 45; breadth between pronotal angles $8\frac{1}{2}$ millim.

Hab. Burma; Karen Hills (*Doherty*). Upper Tenasserim (*Limborg*).

aaa. *Rostrum reaching base of anal segment.*

1551. **Platypleura badia,** *Dist. Ann. Mus. Civ. Gen.* xvii, p. 453, t. iv, f. 6, *a*, *b* (1888); *id. Mon. Orient. Cicad.* p. 23, tab. vii. f. 15, *a*, *b* (1889).

♀. Allied to *P. insignis*, but differing by the opaque markings to the tegmina being fulvous-brown; the wings have the opaque coloration extending further from the base, where it is simply pale fulvous; body fulvous brown; structurally distinct by the length of the rostrum, which reaches the base of the anal segment.

Length excl. tegm. 16; exp. tegm. 48; breadth between pronotal angles $8\frac{1}{2}$ millim.

Hab. Tenasserim; Houngdarau Valley (*Fea*).

aaaa. *Rostrum reaching to about middle of abdomen.*

1552. **Platypleura assamensis,** *Atkins. J. A. S. Beng.* liii, p. 212 (1884).

Platypleura repanda, *var.* assamensis, *Dist. Mon. Orient. Cicad.* p. 20, t. i, f. 11, *a*, *b* (1889).

Head, pronotum, mesonotum, tympanal coverings, sternum, rostrum, and legs pale olivaceous-brown; abdomen black, the segmental margins olivaceous; opercula piceous, their margins pale olivaceous-brown, sparingly ochraceously pilose above, more thickly so beneath; head with the area of the ocelli, a discal, central, triangular spot and the incisures to pronotum, four obconical spots (the two central much the shortest), a central lanceolate spot, and two small rounded basal spots to mesonotum, black; tegmina with more than basal half pale brownish, opaque, with darker spots and markings, radial area grey at base and hyaline at apex, a hyaline spot in lower apical area, and an obscure hyaline spot near the base of third and centre of fourth ulnar areas, an oblique broad fuscous fascia crossing bases of first to fifth apical areas, some small apical spots and still smaller fuscous spots at apices of longitudinal veins to apical areas; wings ochraceous, outer margins (particularly broad at apices) castaneous brown; apical margin to anal area hyaline.

Length excl. tegm., ♂ & ♀, 20 to 21; exp. tegm. 60 to 65 millim.

Hab. Assam; Margherita (*Doherty*); N. Khási Hills (*Chennell*); Nága Hills (*Doherty*).

Genus PYCNA.

Pycna, *Amy. & Serv. Hém.* p. 463 (1843); *Dist. A. M. N. H.* (7) xiv, p. 298 (1904).

Type, *P. strix*, Brullé; a species found in Madagascar.

Distribution. Ethiopian and Oriental Regions, and received from China.

Allied to *Platypleura*, from which it differs by the much narrower head, which (including eyes) is only about, or little more than, two-thirds the width of base of mesonotum; the costal membrane of tegmina is also prominently arched and dilated at base.

1553. **Pycna repanda**, *Linn.* (Cicada) *Syst. Nat.* i, 2, p. 707. 17 (1767); *Oliv. Enc. Méth.* v, p. 754 (1790); *Germ. in Thon, Ent. Arch.* ii, 2, p. 2 (1830); *Fabr.* (Tettigonia) *Sp. Ins.* ii, p. 321. 16 (1781); *Atkins.* (Platypleura) *J. A. S. Beng.* lv, p. 150 (1886); *Dist. Mon. Orient. Cicad.* p. 19, tab. i, f. 7, *a*, *b* (1889).
Platypleura phalænoides, *Walk. List Hom.* i, p. 4 (1850); *Atkins. J. A. S. Beng.* liii, p. 211 (1885).
Platypleura interna, *Walk. List Hom.* iv, p. 1119 (1852).

Head, pronotum, and mesonotum greenish-ochraceous; head with a spot on each side of base of front, a transverse fascia between eyes, and some spots on disk of vertex black; pronotum with a central longitudinal fascia (widened posteriorly), incisures, and anterior borders of dilated lateral margins black; mesonotum with four obconical spots (the two central shortest), a central lanceolate spot, and two spots in front of cruciform elevation black; abdomen above and beneath blackish, ochraceously pilose,

posterior segmental margins ochraceous; head and sternum beneath thickly yellowishly pilose, longitudinal sulcation and some transverse striations to face black; legs pale castaneous, femora with dark spots; opercula black, their outer margins narrowly ochraceous; tegmina with basal half opaque, greenish-ochraceous; two spots on costal membrane, two in radial area and one beneath its

Fig. 36.—*Pycna repanda.*

apex, and a large irregular fascia crossing beyond radial area—enclosing some semihyaline spots—fuscous-brown; apical half hyaline, venation greenish-ochraceous, a large subapical fasciate spot and a double series of small spots near apices of longitudinal veins to apical areas fuscous; wings ochraceous, apical area and apex of anal area dark castaneous, outer margins pale hyaline.

Length excl. tegm. 21 to 23; exp. tegm. 68 to 78; breadth between pronotal angles 12 to $12\frac{1}{2}$ millim.

Hab. Kashmir Valley (*Leech*). North Bengal (*Campbell*). Darjiling (*Ind. Mus.*). Assam; Margherita and Nága Hills (*Doherty*). Khási Hills (*Chennell*). Sikhim (*Coll. Dist.*). Sylhet (*Stainsforth*). Seebsagar (*Ind. Mus.*). Burma; Kakhien Hills (*Fea*).

Genus ANGAMIANA.

Angamiana, *Dist. A. M. N. H.* (6) v, p. 234 (1890); *id. Mon. Orient. Cicad.* p. 100 (1892).

Type, *A. ætherea*, Dist.

Distribution. Oriental Region and Southern China.

Head small, including eyes much narrower than pronotum and narrower than base of mesonotum, ocelli much wider apart from eyes than from each other, front much depressed; pronotum longer than mesonotum, its lateral and posterior margins very broad, the first strongly ampliated and obscurely angulated; abdomen longer than space between apex of head and base of cruciform elevation, above with its lateral areas oblique; tympanal orifices completely covered; opercula broad, obtusely angulated, not reaching the middle of abdomen; tegmina semihyaline, with the apical third more or less reticulately veined, the apical areas numerous, generally twelve or thirteen in number.

1554. **Angamiana ætherea**, *Dist. A. M. N. H.* (6) v, p. 235 (1890); *id. Mon. Orient. Cicad.* p. 100, tab. xiii, f. 1, *a*, *b* (1892).

Body black; abdomen greyishly tomentose; eyes castaneous; margins of pronotum and an abbreviated central line to same, posterior margin of metanotum, head beneath (excluding face), sternum, and opercula pale greenish-ochraceous; legs and rostrum black; tegmina semihyaline and of a pale shining bronzy hue, the venation darker and either ochraceous or greenish, the costal membrane and area pale greenish, the extreme base and the

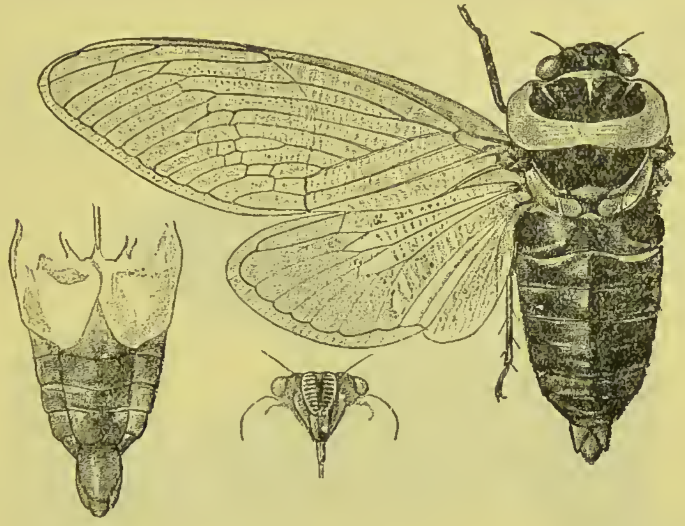


Fig 37.—*Angamiana ætherea.*

veins enclosing the postcostal area black, the veins enclosing the two upper apical areas, terminal veiu of lower ulnar area, and outer margin dark bronzy; wings pale bluish-green, becoming bronzy towards apex, the outer margin dark bronzy; rostrum about reaching posterior coxæ.

Length excl. tegm., ♂ 46, ♀ 40 to 42; exp. tegm., ♂ & ♀, 124 to 132 millim.

Hab. Assam; Nága Hills (*Doherty*).

Genus **POLYNEURA.**

Polyneura, *Westw. Arcan. Entom.* i, p. 92 (1842); *Amy. & Serv. Hém.* p. 460 (1843); *Dist. Mon. Orient. Cicad.* p. 23 (1889).

Type, *P. ducalis*, Westw.

Distribution. Oriental Region.

Head including eyes about as wide as base of mesonotum, but narrower than pronotum, ocelli further apart from eyes than from each other, front obliquely depressed; pronotum longer than mesonotum, its lateral margins ampliated and medially

shortly angulate; abdomen longer than space between apex of head and base of cruciform elevation; tympanal orifices completely covered; opercula short and broad; meso- and metasterna centrally sulcate; tegmina opaque with the venation dense and furcate, reticulate towards apex, all the areas numerous and ill-defined.

1555. **Polyneura ducalis**, *Westw. Arcan. Entom.* i, p. 92, t. xxiv, f. 2 (1842); *Amy. & Serv. Hém.* p. 460 (1843); *Atkins. J. A. S. Beng.* liii, p. 211 (1885); *Dist. Mon. Orient. Cicad.* p. 23, tab. ii, f. 7, *a*, *b* (1889).

Body above and beneath black, beneath somewhat strongly greyishly tomentose; anterior lateral margins of vertex of head, margins of pronotum, and sometimes two discal spots to mesonotum ochraceous; femora reddish, their bases and apices and the tibiæ

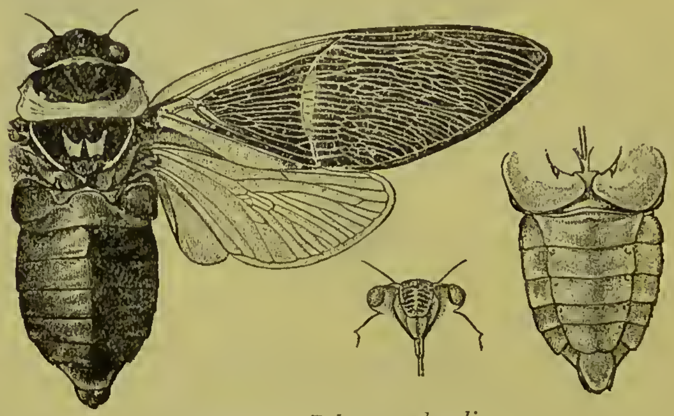


Fig. 38.—*Polyneura ducalis.*

and tarsi black, in some specimens the coxæ are also reddish; tegmina opaque, brownish, the venation, costal membrane and area, claval margin and a subcentral transverse line or narrow fascia ochraceous, before this line the ground-colour is darker in hue; wings ochraceous, in some specimens with paler irrorations; rostrum reaching the posterior coxæ.

Length excl. tegm. 35 to 37; exp. tegm. 100 to 110 millim.

Hab. Nepal (*Hardwicke*); North-western Province, Ranikhêt (*Ind. Mus.*), Mussooree (*Mackinnon*). Sikhim and Assam (*Ind. Mus.*). Darjiling (*Coll. Dist.*). Burma; Rangoon (*Coll. Dist.*).—Se-Tchouen (*Paris Mus.*). Chinese Tibet (*Coll. Dist.*).

Division *TACUARIA*.

Tacuaria, *Dist. A. M. N. H.* (7) xiv, p. 300 (1904).

Lateral margins of the pronotum convex, but not angularly

produced, sometimes simply moderately convex or anteriorly sub-ampliated and somewhat toothed; tegmina and wings more or less opaquely coloured; in one species, *Tosena splendida*, Dist., the tegmina with hyaline spaces.

This division takes its name from the genus *Tacua*, Amy. & Serv., represented by a single very large and representative species at present known only from the Malayan Region. The Tacuaria comprise only three genera—the one already mentioned, *Tosena* found in our region, and *Graptopsaltria* apparently confined to China and Japan.

Genus TOSENA.

Tosena, *Amy. & Serv. Hém.* p. 462 (1843); *Stål, Hem. Afr.* iv, p. 3 (1866); *Dist. Mon. Orient. Cicad.* pp. 4 & 25 (1889).

Type, *T. fasciata*, Fabr., a Malayan species.

Distribution. Oriental and Malayan Regions.

Head (including eyes) equal in width to base of mesonotum, about as long as pronotum, front prominent but obliquely depressed, ocelli twice the distance from eyes as from each other; pronotum

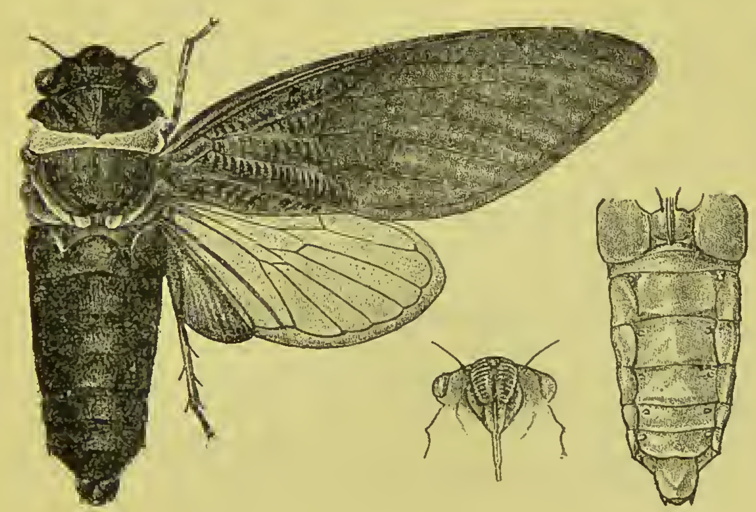


Fig. 39.—*Tosena mearesiana.*

as long as mesonotum, lateral margins more or less ampliated and more or less distinctly toothed; abdomen in male long, very much longer than space between apex of head and base of cruciform elevation, somewhat convex above, tympanal orifices covered; metasternum elevated; opercula in male short and broad; anterior femora strongly spined beneath; tegmina and wings opaque, the first with eight apical areas.

A. *Tegmina and wings opaque.*

a. *Tegmina uniformly black; wings reddish-ochraceous.*

1556. **Tosena mearesiana,** *Westw.* (Cicada) *Arc. Ent.* i, p. 98, t. xxv, f. 1 (1842); *Amy. & Serv.* (Tosena) *Hém.* p. 463 (1843); *Atkins. J. A. S. Beng.* liii, p. 217 (1885); *Dist. Mon. Orient. Cicad.* p. 26, t. ii, f. 3, *a*, *b* (1889).

Body and legs black or dark fuscous; ocelli and eyes pale castaneous; posterior margins of pronotum and mesonotum, posterior lateral margins of metanotum, usually a small spot on each side of face, and a large spot on posterior lateral margins of prosternum ochraceous; tegmina black, opaque; wings reddish-ochraceous, the venation, posterior margins, and anal areas fuscous; rostrum extending to between the inner margins of the opercula in male, which are broad and widely separated.

Length excl. tegm., ♂ 53 to 58, ♀ 40 to 43; exp. tegm., ♂ 132 to 142, ♀ 130 to 133 millim.

Hab. Sikhim (*Ind. Mus. & Coll. Dist.*).

Westwood only gave the habitat "Himalaya" in his original description.

aa. *Tegmina more or less black, crossed by a white fascia.*

b. *Wings black.*

1557. **Tosena melanoptera,** *White* (Cicada (T.)), *A. M. N. H.* xvii, p. 331 (1846); *Atkins.* (Tosena) *J. A. S. Beng.* liii, p. 217 (1885); *Dist. Mon. Orient. Cicad.* p. 27, t. ii, f. 5, *a*, *b* (1889).
Var. albata, *Dist.* (Tosena) *Tr. E. S.* 1878, p. 175; *id. Mon. Orient. Cicad.* p. 27, t. ii, f. 4, *a*, *b* (1889).

Head, pronotum, mesonotum, sternum, legs, and opercula black; posterior margins of pronotum and mesonotum, posterior lateral margins of metanotum, abdomen above and beneath, including tympanal coverings, ochraceous; base of abdomen above, a spot on second segment, and base and a double segmental series of spots to abdomen beneath, black; tegmina and wings black, opaque, the first crossed by a broad transverse white fascia.

Var. *a.* Apices of femora ochraceous; margins of tympanal coverings black.

Var. *b.* Tympanal coverings wholly black.

Var. *c. albata*, Dist. Tegmina and wings with greyish ray-like longitudinal fasciæ.

Length excl. tegm., ♂ 58 to 62, ♀ 43; exp. tegm., ♂ 140 to 155, ♀ 130 millim.

Hab. N.W. Himalaya (*Coll. Dist.*). Sikhim (*Ind. Mus.*). Darjiling (*Stockh. Mus.*). Assam; N. Khási Hills (*Chennell*). Sylhet (*Brit. Mus.*). Seebsagar (*Ind. Mus.*). Burma; Bhamó (*Fea*).

1558. **Tosena montivaga,** *Dist. Mon. Orient. Cicad.* p. 28, t. xiii, f. 6, *a, b* (1889).

♂. Body and legs black; head with the eyes and the lateral margins and anterior angles to vertex, and two small spots on anterior margin of pronotum, ochraceous; lateral and posterior margins of pronotum, lateral margins and a large basal patch to mesonotum pale greenish or greenish-ochraceous, the basal patch with two small black spots; apical area of abdomen greyish-tomentose; face, a spot connecting face with eyes, lateral margins of prosternum, apices of femora and coxal spots ochraceous; tegmina black, venation and costal membrane and area pale greenish, an oblique white fascia almost completely crossing beyond radial area; wings black; rostrum reaching base of abdomen.

♀. Differing from the male in having the transverse fascia to tegmina broader, and the abdomen uniformly black, not greyish at apex.

Length excl. tegm., ♂ 51, ♀ 41; exp. tegm., ♂ 130, ♀ 128 millim.

Hab. Assam; Nága Hills (*Doherty*).

bb. *Wings red, with apex black.*

1559. **Tosena dives,** *Westw.* (Cicada) *Arc. Ent.* i, p. 98, t. xxv, f. 2 (1842); *Amy. & Serv.* (Tosena) *Hém.* p. 464 (1843); *Atkins.* (Gæana) *J. A. S. Beng.* liii, p. 221 (1885); *Dist.* (Tosena) *Mon. Orient. Cicad.* p. 29, t. iii, f. 10, *a, b* (1889).
Huechys transversa, *Walk. List Hom., Suppl.* p. 40 (1858); *Atkins. J. A. S. Beng.* liii, p. 219 (1885).

Body and legs black; apex of face castaneous; tegmina black, the venation, costal membrane, and a transverse fascia crossing at apex of radial area and terminating on posterior margin at lower apical area, reddish-ochraceous; wings pale sanguineous with about apical third black; face very globose; rostrum extending to between inner angles of opercula.

Length excl. tegm., ♂, 24 to 25; exp. tegm. 66 to 73 millim.

Hab. Sikhim (*Ind. Mus. & Coll. Dist.*). Darjiling (*Stockh. Mus.*). Sylhet (*Stainforth*).

A species apparently with a very limited distribution.

B. *Tegmina and wings semi-opaque.*

1560. **Tosena splendida,** *Dist. Ent. Month. Mag.* xv, p. 76 (1878); *Waterh. Aid to Ident. Ins.* t. cxlvii, f. i (1884); *Atkins. J. A. S. Beng.* liii, p. 217 (1885); *Dist. Mon. Orient. Cicad.* p. 30, t. ii, f. 6, *a, b* (1889).

Body above black; front of head with a reddish spot at each basal angle; eyes, two small spots on vertex, four large spots to pronotum (two on disk and one at each posterior angle), and two

spots on disk of mesonotum pale ochraceous; body beneath and legs black; lateral margins of face, a wide central annulation to femora, and a central discal series of subtriangular spots sanguineous; tegmina and wings (where not obscured by dark markings) hyaline, exhibiting varied opaline lustre, which in some lights is found to be ornamented with close and regular series of transverse darker striæ; tegmina narrowly at base and with the costal membrane shining black, venation bright flavescent, and for two-thirds from base broadly margined with shining black, a series of shining black marginal spots on apices of longitudinal veins to apical areas, claval area pale greenish; wings pale greenish, apical third shining black, enclosing a submarginal series of pale opaline spots.

Length excl. tegm., ♂ 45 to 47, ♀ 44; exp. tegm. ♂ & ♀ 122 to 127 millim.

Hab. Assam; Nága and Khási Hills (*Chennell*). Lushai country (*Ind. Mus.*). Burma; Akyab (*Coll. Dist.*); Arakan Yoma.

Division *CICADARIA*.

Cicadaria, *Dist. A. M. N. H.* (7) xiv, pp. 329 & 425 (1904).

Lateral margins of the pronotum more or less convex but not toothed; tegmina and wings hyaline or clear as in many species of the genus *Cicada*, or semi-opaque, as represented in the genus *Cryptotympana*; head broad, and (including eyes) always a little, and generally considerably, wider than the base of mesonotum.

Synopsis of Genera.

A. Metasternum not or very slightly elevated, and not provided with a posterior process; length of head more than half the breadth of space between eyes; face usually very prominent; lateral margins of pronotum without an anterior lobe .... RIHANA, p. 78.

B. Metasternum elevated at middle and furnished with a posterior process directed backward .. CRYPTOTYMPANA, [p. 80.

Genus RIHANA.

Rihana, *Dist. A. M. N. H.* (7) xiv, p. 426 (1904).
Cicada, subgen. Chremistica, *Stål* (part.), *Œfv. Vet.-Ak. Förh.* 1870, p. 714, note.
Cicada, subgen. Cicada, *Stål* (part.), *tom. cit.*
Cicada, subgen. Diceroprocta, *Stål* (part.), *tom. cit.*

Type, *R. ochracea*, Walk., known at present from China and Formosa.

Distribution. Nearctic, Neotropical (including Antillean), and Oriental (including Malayan) Regions; also found in Madagascar.

Head distinctly longer than half the breadth between eyes, and (including eyes) wider than base of mesonotum; front more or less prominent, its lateral margins in line with lateral margins of vertex; eyes oblique, longer than broad; pronotum a little narrowed behind eyes, about or almost as long as mesonotum in front of cruciform elevation; abdomen not, or scarcely, longer than length between apex of face and base of cruciform elevation; other characters generally as in *Cicada.*

1561. **Rihana mixta**, *Kirby* (Dundubia), *J. Linn. Soc., Zool.* xxiv, p. 128 (1891).

Body above black; head with basal and apical spots and lateral fasciate lines ochraceous, vertex with an ochraceous spot on each side of ocelli and its lateral margins ochraceous; pronotum with

Fig. 40.—*Rihana mixta.*

a central fascia and the margins ochraceous or greenish-ochraceous; mesonotum with two central obconical spots only denoted by their ochraceous margins, the lateral margins (often connected with the apices of the obconical spots) ochraceous; abdomen with a large white pubescent spot behind base of tympanal coverings; head, sternum, and legs ochraceous; abdomen beneath reddish-ochraceous; transverse striæ to face, spot between face and eyes, anterior legs with the base of coxæ, under surface of femora, tarsi, and most of the tibiæ black, intermediate and posterior legs much less marked with black; tegmina and wings hyaline, the venation, except near base, fuscous; tegmina with extreme base, basal cell, costal membrane and area ochraceous.

Length excl. tegm. 30; exp. tegm. 97 millim.

Hab. Ceylon (*Green*).

This species is very closely allied to the Malayan *R. viridis*, Fabr., of which I have hitherto treated it as a synonym. It is a larger insect, judging from the type in the British Museum,

and should it prove (when more material is available for study) to be scarcely a distinct species, it is at all events a distinct local race.

1562. **Rihana germana**, *Dist.* (Cicada) *Ann. Mus. Civ. Gen.* xxvi, p. 457, t. iv, f. 3, *a*, *b* (1888); *id. Mon. Orient. Cicad.* p. 97 (1892).

Body above dull reddish-ochraceous or greenish-ochraceous; head with a broad anterior margin to front, inner margins of eyes and a fascia between them, black; pronotum with two central fasciate lines anteriorly diverging towards eyes, anterior margin and inner edge of posterior margin, black; mesonotum with four obconical spots (the outermost longest and inwardly ochraceous) and a central lanceolate fascia black; abdomen with the segmental margins black, the lateral areas and anal segment distinctly ochraceously pilose; body beneath and legs pale reddish-ochraceous; sternum and lateral abdominal areas ochraceously pilose; apex of rostrum black and just passing the intermediate coxæ; tegmina and wings hyaline, the venation olivaceous; tegmina with the costal membrane green, postcostal area black; opercula rounded posteriorly, not overlapping inwardly and not reaching base of abdomen.

Length excl. tegm., ♂, 30; exp. tegm. 85 millim.

Hab. Burma; Teinzo (*Fea*)—Penang Hills (*Flower*). Siam Malay States; Bulsit Besar (*Annandale*).

Genus CRYPTOTYMPANA.

Cryptotympana, *Stål, Ann. Soc. Ent. Fr.* (1861) p. 613; *id. Hem. Afr.* iv, p. 6 (1866); *Dist. Mon. Orient. Cicad.* p. 83 (1891).

Type, *C. pustulata*, Fabr., a Malayan species also found in China and Japan.

Distribution. Oriental Region, Malayan Archipelago (probably not extending eastward beyond the Philippines), and the extreme eastern portion of the Palæarctic Region.

Head broad, more or less transversely truncate between the eyes, including which it is a little broader than the base of mesonotum, its length only slightly more than half the breadth between eyes, ocelli about twice the distance from eyes as from each other, front slightly prominent; pronotum about as long as mesonotum, its lateral margins oblique, the posterior angles a little ampliate; abdomen in male about as long as space between apex of head and base of cruciform elevation, the tympanal orifices concealed by the tympanal coverings; opercula in male well developed, varying in shape and size; metasternum elevated at middle and furnished with a posterior process directed backward; anterior femora strongly spined beneath; tegmina hyaline or semiopaque, basal cell longer than broad; apical areas eight.

A. *Tegmina with transverse veins at bases of second and third apical areas not infuscated.*

a. *Tegmina with black basal coloration extending beyond basal cell.*

b. *Opercula in male about half as long as abdomen, their outer margins inwardly oblique, their apical margins concavely oblique to apices, which are obtusely angulate.*

1563. **Cryptotympana corvus,** *Walk.* (Fidicina) *List Hom.* i, p. 86 (1850); *Atkins. J. A. S. Beng.* liii, p. 231 (1885); *Stål* (Cryptotympana), *Öfv. Vet.-Ak. Förh.* 1862, p. 483; *Dist. Mon. Orient. Cicad.* p. 87, t. x, f. 11, *a, b* (1891).
Fidicina invarians, *Walk. Ins. Saund., Hom.* p. 11 (1858).

Body above black; lateral margins of pronotum ochraceously pilose: mesonotum with the outlines of two central obconical spots; head beneath, sternum, legs, and rostrum blackly, thickly greyishly pilose; a spot at basal margin of face, femora and posterior tibiæ (excluding bases and apices), and opercula (excluding

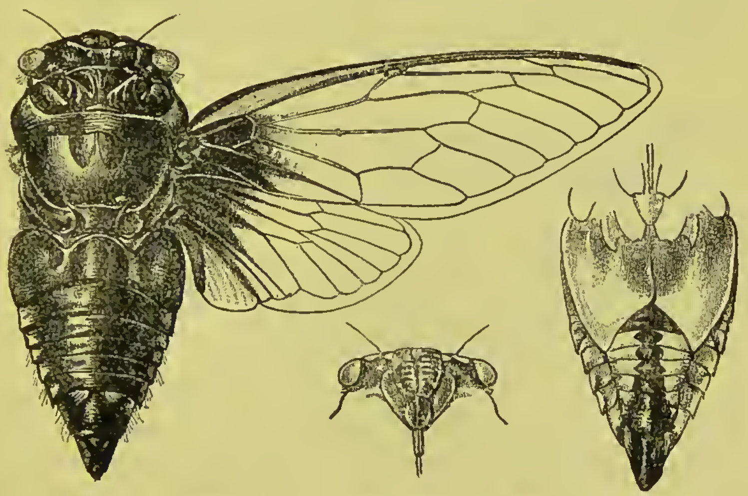


Fig. 41.—*Cryptotympana corvus.*

basal areas) reddish-ochraceous; abdomen beneath thickly darkly ochraceously pilose, with a broad central black fascia; tegmina and wings hyaline, the venation ochraceous and fuscous; tegmina with the costal membrane ochraceous, its edge black, postcostal area black, basal cell and less than basal fourth (excluding venation) black; wings with less than basal third black.

Length excl. tegm., ♂, 45 to 47; exp. tegm. 117 to 130 millim.

Hab. Sikhim (*Coll. Dist.*). Darjiling (*Stockh. Mus.*). Sylhet (*Brit. Mus.*). Assam (*Ind. Mus.*); Nága Hills (*Doherty*). Nilgiri Hills (*Hampson*).

aa. *Tegmina with black basal coloration not extending beyond basal cell.*

e. *Opercula in male reaching penultimate abdominal segment, inner margins straight, not overlapping, apical margins strongly concavely sinuate, their apices curved inwards.*

1564. **Cryptotympana edwardsi,** *Kirk. J. Bomb. N. H. Soc.* xiv, p. 55 (1902).

Allied to *C. corvus,* but differing principally by the size and shape of the opercula in male, which reach the penultimate abdominal segments; the abdomen beneath is uniformly ochraceous, black at base and apex, but without the central black longitudinal fascia; mesonotum with four dark distinct obconical spots and a similar central lanceolate spot; front with a central longitudinal line, pronotum with a similar line on its anterior area and its posterior margins ochraceous; tegmina with the black basal area not extending beyond basal cell, and wings narrowly black at base.

Length excl. tegm. 46½; exp. tegm. 115 millim.

Hab. "India" (*Coll. Edwards*).

ee. *Opercula in male about half as long as abdomen, their outer margins reflexed, very slightly oblique, their apical margins straightly not concavely oblique.*

1565. **Cryptotympana intermedia,** *Sign.* (Cicada) *Rev. Mag. Zool.* 1849, p. 407, t. x, f. 2; *Stål* (Cryptotympana), *Ann. Soc. Ent. Fr.* 1861, p. 613; *Atkins. J. A. S. Beng.* liii, p. 231 (1885); *Dist. Mon. Orient. Cicad.* p. 88, t. xi, f. 1, *a, b* (1891); *Melich. Hom. Faun. Ceylon,* p. 6 (1903).

Fidicina immaculata, *Walk.* (*nec Oliv.*) *List Hom.* i, p. 90 (1850).

Body above black or dark castaneous; mesonotum with two obscure central obconical spots and the basal cruciform elevation castaneous; tympanal coverings dark castaneous; body beneath black, somewhat thickly greyishly pilose (excepting the central disk of abdomen); femoral and tibial streaks, posterior tibiæ (excluding bases and apices), and the opercula ochraceous; tegmina and wings hyaline, the venation ochraceous; tegmina with the costal membrane and postcostal area ochraceous, extreme basal costal edge black, basal cell and basal patch (excluding venation) brownish-ochraceous or black; wings with about basal fifth brownish-ochraceous.

Length excl. tegm., ♂, 44; exp. tegm. 127 millim.

Hab. North Bengal (*Brit. Mus.*). Mussooree (*Mackinnon*). Ceylon, Matale (*Green*); Dambula, Mikintale, Nalanda (*fide Melichar*).—Java (*fide Signoret*).

B. *Tegmina with transverse veins at bases of second and third apical areas infuscated.*

b. *Tegmina with black basal coloration extending to about end of basal cell.*

d. *Opercula in male more than half the length of abdomen, outer margins slightly concavely sinuate, inner margins overlapping, apical margins concavely and obliquely sinuate to apices, which are subacutely angulate.*

1566. **Cryptotympana acuta,** *Sign.* (Cicada) *Rev. Mag. Zool.* 1849, p. 409, t. x, f. 3, *a*; *Stål* (Cryptotympana), *Ann. Soc. Ent.* 1861, i, p. 613; *Dist. Mon. Orient. Cicad.* p. 88, t. xi, f. 8, *a*, *b* (1891).
Cicada vicina, *Sign. Rev. Mag. Zool.* 1849, p. 410, t. x, f. 4; *Stål* (Cryptotympana), *Ann. Soc. Ent.* 1861, i, p. 613; *Atkins. J. A. S. Beng.* liii. p. 230 (1885).
Fidicina nivifera, *Walk. List Hom.* i, p. 80 (1850); *id. tom. cit.* iv, t. i, f. 2 (1852).
Fidicina bicolor, *Walk. tom. cit.* iv, p. 1121 (1852).
Fidicina timorica, *Walk. J. Linn. Soc., Zool.* x, p. 91 (1867).

Body above dark castaneous or black; eyes and ocelli ochraceous; mesonotum with two central obscure obconical spots, followed on each side by a longer fascia and with a curved fascia in front of the cruciform elevation; abdomen with a large greyish-white fascia on each lateral area occupying three segments behind the tympanal coverings; body beneath dark castaneous, sternum thickly greyishly pilose; opercula ochraceous; apical abdominal segment and anal appendage ochraceous; tegmina and wings hyaline, venation ochraceous and fuscous; tegmina with costal membrane ochraceous, the postcostal area black, base as far as extremity of basal cell (excluding venation) irregularly black; transverse veins at bases of second and third apical areas infuscated; wings with less than basal third (excluding venation) black.

Length excl. tegm. 36 to 43: exp. tegm. 102 to 130 millim.

Hab. Bhutan Duárs (*fide Atkinson*).—Java. Borneo. Lombok. Philippines. Timor.

dd. *Opercula in male about half the length of abdomen, outer margins concavely sinuate, inner margins overlapping, and thence concavely and obliquely divergent to apices which are subacute.*

1567. **Cryptotympana recta,** *Walk.* (Fidicina) *List Hom.* i, p. 79 (1850); *Stål* (Cryptotympana), *Öfv. Vet.-Ak. Förh.* 1862, p. 483;

Atkins. J. A. S. Beng. liii, p. 230 (1885); *Dist. Mon. Orient. Cicad.* p. 89, t. x, f. 10, *a*, *b* (1891).

Body above black, sparingly ochraceously pilose; eyes castaneous; mesonotum with two very obscure central obconical spots; body beneath black, sternum and lateral areas of abdomen thickly greyishly pilose; opercula ochraceous; legs black, intermediate tibiæ and posterior femora and tibiæ castaneous, streaked with black; tegmina and wings hyaline, venation ochraceous or fuscous; tegmina with the costal membrane ochraceous, its extreme basal costal edge black, postcostal area black, transverse veins at bases of second and third apical areas darkly infuscate, basal area to slightly beyond basal cell (excluding venation) black; wings with less than basal third black.

Length excl. tegm., ♂, 41; exp. tegm. 110 millim.

Hab. Sylhet (*Brit. Mus.*). Assam; North Khási Hills (*Chennell*). Nilgiri Hills (*Hampson*).

ddd. *Opercula in male short and subovate, inner margins not overlapping, apical margins oblique to apices which do not extend beyond basal abdominal segment, outer margins slightly oblique.*

1568. **Cryptotympana limborgi,** *Dist. A. M. N. H.* (6) i, p. 296 (1888); *id. Mon. Orient. Cicad.* p. 91, t. x, f. 7, *a*, *b* (1891).
Cryptotympana recta, *Dist.* (*nec Walk.*) *J. A. S. Beng.* xlviii, p. 40, t. ii, f. 4 (1879).

Body above olivaceous-brown, sometimes blackish-olivaceous; head with the lateral striations to front and a transverse fascia between the eyes black; pronotum with two central, oblique, black fasciæ, its posterior and lateral margins olivaceous, the anterior margin narrowly black; mesonotum with four anterior central obconical spots (the two central spots largest), and a small oblique fasciate line on each side near base, black; abdominal segmental margins and inner area of tympanal coverings black; abdominal lateral areas greyishly pilose; body beneath olivaceous-brown; anterior tibiæ and tarsi, apices of intermediate and posterior tibiæ and the tarsi black; opercula in male olivaceous with their inner margins broadly black; lateral areas of abdomen beneath ochraceously pilose; tegmina and wings hyaline, venation ochraceous or fuscous; tegmina with costal membrane olivaceous, the postcostal area black, basal area to about end of basal cell (excluding venation) piceous or black, transverse veins at bases of second and third apical areas infuscate; wings (excluding venation) narrowly piceous or black at base.

Length excl. tegm., ♂, 32; exp. tegm. 95 millim.

Hab. Tenasserim (*Limborg*); Myitta (*Doherty*).

bb. *Tegmina with only extreme base black or piceous.*

e. *Opercula in male slightly overlapping at inner margins, obtusely and broadly angulated at apices which do not extend beyond basal abdominal segment.*

1569. **Cryptotympana insularis,** *Dist. A. M. N. H.* (5) xx, p. 416 (1887); *id. Mon. Orient. Cicad.* p. 91, t. xi, f. 2, *a*, *b* (1891).

♂. Body short and broad; head, pronotum, and mesonotum dark olivaceous, eyes and ocelli ochraceous, front with lateral black carinæ; pronotum with a pale central longitudinal impression, the incisures somewhat dark; mesonotum with four anterior obconical spots, of which the two central are largest, and a transverse spot in front of cruciform elevation dull dark castaneous; abdomen above dark brownish-olivaceous, the segments palely pilose; body beneath olivaceous; face with a central, longitudinal, levigate, ochraceous fascia; rostrum piceous and almost reaching the posterior coxæ; abdomen beneath brownish-ochraceous; legs with anterior femora dark ochraceous, their apices and the anterior tibiæ and tarsi piceous; intermediate and posterior femora brownish, trochanters piceous, tibiæ ochraceous with their apices and the tarsi piceous, posterior tarsi with a central ochraceous annulation; tegmina and wings hyaline, with a slight fuscous tinge, both narrowly dark fuscous at base; tegmina with the venation and costal membrane olivaceous, transverse veins at bases of second and third apical areas distinctly infuscate.

Length excl. tegm., ♂, 36; exp. tegm. 115 millim.

Hab. Andaman Islands; Port Blair (*Meldola*).

C. *Tegmina with only the extreme base piceous or black, the transverse veins at bases of second and third apical areas infuscate.*

ee. *Opercula in male not extending beyond basal abdominal segment, their apices somewhat truncately rounded, their inner margins meeting but not overlapping.*

1570. **Cryptotympana vesta,** *Dist.* (Cicada) *Tr. E. S.* 1904, p. 673, pl. xxx, f. 4, *a*, *b*.

Head black, a central line to face and anterior narrow margin to vertex ochraceous; pronotum castaneous, its posterior margin and a central longitudinal fascia margined with black, ochraceous; mesonotum black, two central, discal angulated fasciæ with a spot between them, and the basal cruciform elevation, ochraceous; abdomen above black; body beneath and legs pale ochraceous, greyishly pilose; opercula and anal segment bright ochraceous;

apices of tibiæ and tarsi piceous; tegmina and wings pale hyaline, the venation ochraceous towards base and fuscous towards apex; tegmina with the costal membrane ochraceous to apex of radial area and thence piceous, the basal cell and narrow bases of both tegmina and wings piceous; opercula about half the length of abdomen, their lateral margins somewhat strongly oblique; rostrum about reaching the posterior coxæ.

Length excl. tegm., ♂ 58, ♀ 22; exp. tegm., ♂ 80, ♀ 70 millim.

Hab. Bombay (*R. M. Dixon*).

This species greatly resembles the genus *Cicada*, and I was so misled by the general similarity that I originally described it in that genus, not having searched for the metasternal process.

eee. *Species at present only known to writer by female specimens: description of opercula therefore impossible.*

1571. **Cryptotympana exalbida,** *Dist. Mon. Orient. Cicad.* p. 92, t. xiii, f. 12, *a, b* (1891).

♀. Head, pronotum, and mesonotum castaneous, abdomen black; head with lateral striations to front and the vertex black, eyes ochraceous; pronotum with two central fasciate spots anteriorly widened, a transverse linear mark at front of anterior margin, hinder edge of posterior margin and a short transverse central fascia to same black, anterior halves of lateral margins cretaceously tomentose; mesonotum with four central obconical spots (of which the central two are shortest), a broad lateral fascia, a central lanceolate spot, and two small spots in front of cruciform elevation black; abdomen sparingly griseously pilose; body beneath black; sternum and lateral areas of abdomen thickly griseously pilose; face castaneous, its transverse striations and longitudinal sulcation and space between face and eyes black; coxal spots black; legs castaneous, anterior and intermediate tibiæ and tarsi black, intermediate tibiæ with a subbasal castaneous annulation, apices of posterior tibiæ and bases of posterior tarsi black; anal appendage with an ochraceous spot on each side; tegmina and wings hyaline, venation ochraceous and fuscous; tegmina with costal membrane ochraceous, postcostal area black, basal cell ochraceous, its upper half black, extreme basal area and a broad claval streak black; wings narrowly black at base.

Length excl. tegm., ♀, 32; exp. tegm. 95 millim.

Hab. Sikhim (*Coll. Dist.*). Nilgiri Hills (*Hampson*).

I have not seen the male of this species.

D. *Tegmina to about end of basal cell only moderately infuscate.*

1572. **Cryptotympana varicolor,** *Dist. A. M. N. H.* (7) xiv, p. 430 (1904).

♀. Body brownish-ochraceous; pronotum with two inwardly

curved obconical black spots and two more obsolete black oblique spots on each lateral area between the incisures, but not extending to the posterior margin; mesonotum with a large pale greenish discal spot, its base truncate and resting on the cruciform elevation, anteriorly divided into three angular prolongations which about reach the anterior margin; lateral areas of the sternum somewhat pale greenish. Tegmina and wings hyaline, bases of both brownish ochraceous; the tegmina with the costal membrane and area, the basal cell, the greater part of the venation, and the margins of the transverse veins at bases of second and third apical areas brownish ochraceous.

Length of head about half the width between eyes, and including eyes considerably broader than base of mesonotum; rostrum passing the intermediate coxæ; body beneath finely pilose; anterior femora armed with two long spines beneath.

Length excl. tegm., ♀, 31; exp. tegm. 102 millim.

Hab. Ceylon (*Green*).—Sumbawa Island (*Paris Mus.*).

Division *DUNDUBIARIA.*

Dundubiaria, *Dist. A. M. N. H.* (7) xv, p. 58 (1905).

Lateral margins of the pronotum distinctly angulated or toothed; tegmina and wings hyaline, sometimes spotted, but never opaque; opercula in male varying very much in length and shape, and in some genera reaching the maximum of development.

This division is a very homogeneous one, but, at the same time, one of the most difficult to analyze generically. It is composed almost entirely of Oriental, Malayan, and Australasian species, though a few are derived from the extreme east of the Palæarctic Region, which, as is well known, possesses strong Oriental affinities.

Synopsis of Genera.

I. Second and third ventral segments in male with distinct lateral tubercles; opercula short.
  A. Head (including eyes) considerably narrower than base of mesonotum .... LEPTOPSALTRIA, [p. 89.
  B. Head (including eyes) as wide as base of mesonotum; head as long as space between eyes. PURANA, p. 91.

II. Ventral segments without tubercles; opercula short, or sometimes very long, and very variable in shape.
  C. Front of head large and convex, about twice as broad at its base as the length of the anterior margins of the lobes of vertex; rostrum scarcely reaching the posterior coxæ. DUNDUBIA, p. 94.
  D. Front of head not twice as broad at base as length of anterior margins of the lobes of vertex; rostrum reaching, sometimes passing, the posterior coxæ.

a. Opercula long, at least reaching centre, and sometimes apex of abdomen.

b. Abdomen short, about as long as space between apex of head and base of cruciform elevation.

a. Head as long as breadth between eyes.

a'. Opercula in male broad, either just or longly passing middle of abdomen, well separated and not overlapping, more or less concavely situate on each side at basal area, their apices rounded or obliquely truncate .... COSMOPSALTRIA, [p. 96.

aa. Head much shorter than breadth between eyes.

a². Opercula in male broad, their inner margins contiguous, nearly equally broad throughout, their apices broad, the outer margins very obsoletely sinuate .... HAPHSA, p. 99.

bb. Abdomen considerably longer than space between apex of head and base of cruciform elevation.

b. Head about as long as breadth between eyes.

c. Pronotum measured centrally almost as long as mesonotum excluding cruciform elevation, its lateral margins always distinctly, strongly, and generally acutely toothed.

a³. Opercula elongate, concavely sinuate on each side near base, their apices rounded or obtusely acute, occupying lateral abdominal areas, and always well separated at their inner margins............ PLATYLOMIA, [p. 100.

b'. Head distinctly shorter than breadth between eyes.

cc. Pronotum measured centrally distinctly shorter than mesonotum, its lateral margins moderately dentate.

a⁴. Opercula obliquely divergent. sometimes very short .... MEIMUNA, p. 107.

aa. Opercula always short and transverse.

d. Abdomen in male longer than space between apex of head and base of cruciform elevation.

d. Tympanal coverings of normal shape and size .... POMPONIA, p. 111.

e. Abdomen in male short, about as long as space between apex of head and base of cruciform elevation.

d'. Tympanal coverings of normal shape and size .... AOLA, p. 115.

d². Tympanal coverings very globose and projecting beyond the lateral margins of the abdomen.

e. Lateral margins of tympanal coverings convex; tegmina not more than three times longer than broad .... [p. 117. ONCOTYMPANA,

f. Lateral margins of tympanal coverings sinuate, their posterior angles only projecting beyond abdominal margins; tegmina more than three times longer than broad .... MATA, p. 119.

Genus **LEPTOPSALTRIA.**

Leptopsaltria (part.), *Stål, Hem. Afr.* iv, p. 5 (1866); (part.) *id. Berl. ent. Zeit.* x, p. 170 (1866); *id.* (part.) *Dist. Mon. Orient. Cicad.* p. 31 (1889).

Type, *L. tuberosa*, Sign.

Distribution. Oriental and extreme eastern portion of the Palæarctic Region.

Head (including eyes), considerably narrower than base of mesonotum, ocelli not quite twice the distance from eyes as from each other, front somewhat conical and subprominent; pronotum with the lateral margins moderately ampliated and more or less distinctly toothed or angulated; genæ internally at apex near base of loræ furnished with a tubercle or tumescence; abdomen moderately long and robust; anterior femora distinctly and robustly spined; rostrum extending beyond the posterior coxæ; tympana covered; opercula short; second and third abdominal segments in the male furnished with a well-developed tubercle near each lateral margin; tegmina and wings hyaline; venation normal, tegminal apical areas eight in number.

a. *Opercula in male small, wide apart, longitudinal, their apices broadly convex.*

1573. **Leptopsaltria tuberosa,** *Sign.* (Cicada) *Ann. Soc. Ent. Fr.* 1847, p. 299; *Stål* (Leptopsaltria), *Berl. ent. Zeit.* x, p. 170 (1866); *Dist. Mon. Orient. Cicad.* p. 34, t. viii, f. 7, *a, b* (1889).

Body above brownish-ochraceous; head with some lateral curved fasciæ to front, some oblique fasciæ to vertex, area of ocelli, and basal margin piceous or black; pronotum with two central longitudinal lines, the anterior margin, edge of lateral margin, and a spot near each lateral area piceous; mesonotum with a narrow central longitudinal fascia, on each side of which is a short curved fascia followed by a short triangular spot on anterior margin, a broad oblique fascia on each lateral area uniting with a large triangular spot in front of cruciform elevation, and a fascia on each lateral margin uniting with the previous fascia at base, piceous; abdomen with the segmental margins piceous; body beneath and legs ochraceous, abdominal tubercles blackish; tegmina and wings hyaline, the venation brownish; tegmina with

the costal membrane brownish, a small blackish spot at base of upper ulnar area, transverse veins at bases of second, third, fifth,

Fig. 42.—*Leptopsaltria tuberosa.*

and seventh apical areas infuscated, and a submarginal series of small fuscous spots on longitudinal veins to apical areas.

Length excl. tegm., ♂ 27 to 32, ♀ 23; exp. tegm., ♂ 72 to 79, ♀ (one spec.) 84 millim.

Hab. Sikhim (*Coll. Dist.*). Assam; Khási Hills (*Ind. Mus.*).—Java (*Coll. Dist.*). Japan (*Bruss. Mus.*).

aa. *Opercula in male small, moderately separated, subtransverse, their apices obliquely subtruncate.*

1574. **Leptopsaltria samia**, *Walk.* (Dundubia) *List Hom.* i, p. 77 (1850); *Atkins. J. A. S. Beng.* liii, p. 225 (1888); *Dist.* (Leptopsaltria) *Mon. Orient. Cicad.* p. 32, t. viii, f. 11, *a*, *b* (1889).

Body above brownish-ochraceous, tinged with greenish; allied to *L. tuberosa*, which it much resembles, but differing by the more produced front of head, the less sinuate lateral margins of the pronotum, more apically broadened abdomen, and different shape of the opercula. Mesonotum with two short central anterior curved lines, on each side of which is a small spot, followed by a broken narrow fascia on each lateral area and two small spots in front of basal cruciform elevation, black.

Length excl. tegm. 26; exp. tegm. 76 millim.

Hab. "North India" (*Warwick, Brit. Mus.*). Sikhim (*Coll. Dist.*).

aaa. *Opercula in male wide apart, oblique, their apical margins obliquely subtruncate.*

1575. **Leptopsaltria andamanensis**, *Dist. A. M. N. H.* (6) i, p. 370 (1888); *id. Mon. Orient. Cicad.* p. 34, t. x, f. 12, *a*, *b* (1889).

Body above reddish-ochraceous; ocelli shining reddish; pronotum with the middle of the anterior margin and the whole of

the posterior margin (widest at centre) piceous; mesonotum with two blackish marginally marked obconical spots at anterior margin, and a greenish fascia near each lateral margin; abdomen with the segmental margins piceous; body beneath ochraceous, the abdominal tubercles blackish; legs mutilated in specimen described; tegmina and wings hyaline, the venation fuscous; tegmina with the costal membrane brownish-ochraceous, a small costal fuscous and ochraceous spot at base of upper ulnar area, the transverse veins at the bases of second, third, and fifth apical areas infuscated, and a series of small fuscous marginal spots near the apices of the longitudinal veins to apical areas; rostrum with its apex piceous and just passing the posterior coxæ.

Length excl. tegm., ♂, 21; exp. tegm. 58 millim.

Hab. Andaman Islands (*Wood-Mason*).

Genus **PURANA.**

Purana, *Dist. A. M. N. H.* (7) xv, p. 60 (1905).

Type, *P. tigrina*, Walk.

Distribution. Oriental and Malayan Regions.

Head (including eyes) as wide as base of mesonotum and as long as space between eyes; face prominent and convex, its base almost at right angles to the anterior lateral angles of vertex; pronotum narrowed anteriorly, its lateral margins angulated or toothed; mesonotum much longer than pronotum; abdomen moderately conical above, gradually attenuated posteriorly, in male considerably longer than the space between the apex of head and base of cruciform elevation, tubercles on the second and third ventral segments large and prominent; opercula small; tympanal coverings in male broader at base than long; rostrum reaching or a little passing posterior coxæ; tegmina and wings hyaline.

a. *Opercula small, wide apart, apices convexly angulated.*

1576. **Purana tigrina,** *Walk.* (Dundubia) *List Hom.* i, p. 69 (1850); *Atkins. J. A. S. Beng.* liii, p. 224 (1885); *Dist.* (Leptopsaltria) *Mon. Orient. Cicad.* p. 35, t. x, f. 6, *a*, *b* (1889).

Head and thorax above greenish-ochraceous; abdomen brownish-ochraceous; head with the frontal margins, the area of the ocelli, inner margins of eyes, and a spot on each lateral area of vertex black; pronotum with anterior margin, two central longitudinal lines, and the outer incisures black; mesonotum with a central longitudinal fascia, followed on each side by a short curved fascia, a broken irregular fascia on each lateral area, and two small spots in front of cruciform elevation black; abdominal segmental margins black; sternum, legs, and opercula greenish-ochraceous; abdomen beneath pale ochraceous, the tubercles, a spot near base,

and the apex black; a transverse spot between face and eyes, a small spot at apex of face, and the apex of rostrum black; tegmina and wings hyaline, venation brownish-ochraceous, fuscous towards apical areas: tegmina with costal membrane brownish-

Fig. 43.—*Purana tigrina.*

ochraceous, a small ochraceous spot near base of upper ulnar area; transverse veins at bases of second and third apical areas broadly infuscated, and some small faint fuscous marginal spots near apex.

Length excl. tegm., ♂, 24 to 27; exp. tegm. 68 millim.

Hab. Malabar (*Brit. Mus.*). Trivandrum (*Fergusson*).—Tibet; Tsekou (*Paris Mus.*). Malay Peninsula; Province Wellesley (*Distant*).

aa. *Opercula small, wide apart, apices convexly rounded.*

1577. **Purana tigroides**, *Walk.* (Dundubia) *Ins. Saund., Hom.* p. 5 (1858); *Dist.* (Leptopsaltria) *Mon. Orient. Cicad.* p. 35, t. xii, f. 18, *a*, *b* (1889).

Closely allied to the preceding species (*P. tigrina*), but structurally differing by the shape of the opercula; the species is also smaller in size; the transverse vein at the base of the second apical area is much less oblique, and the face is less transversely striated with black.

Length excl. tegm. 22; exp. tegm. 60 miilim.

Hab. "Hindostan" (*Brit. Mus.*).—Borneo (*Paris Mus.*).

b. *Opercula wide apart, and somewhat irregularly rectangular in shape.*

1578. **Purana morrisi**, *Dist.* (Leptopsaltria) *Mon. Orient. Cicad.* p. 101, t. xv, f. 19, *a*, *b* (1892).

Body above ochraceous; head with margins of front (excepting apex), anterior angles of vertex, and reticulate markings covering the whole of vertex black; pronotum with two central longi-

tudinal fasciæ, widened anteriorly and angulated posteriorly, and the incisures, piceous; mesonotum with a central longitudinal fascia, on each side of which is a short oblique fascia, followed by a large irregularly curved submarginal fascia, the anterior angles of the cruciform elevation, and two small spots in front of same, black; abdomen with the segmental margins, the last segment and anal appendage (both above and beneath), and an obscure marginal series of spots on each side piceous or black; body beneath and legs very pale ochraceous; an oblique fascia between face and eyes, transverse fasciæ to face, under surface and spines to anterior femora, sternal spots, a transverse central fascia at base of abdomen, and abdominal tubercles black; tegmina and wings pale hyaline, the venation ochraceous and black; tegmina with costal membrane, and a spot at base of upper ulnar area, pale ochraceous; transverse veins at bases of second and third apical areas infuscated, and a series of faint fuscous marginal spots at apices of longitudinal veins to apical areas; rostrum reaching latitude of first pair of abdominal tubercles.

Length excl. tegm., ♂, 19; exp. tegm. 55 millim.

Hab. Madras Province, Shivarai Hills (*Morris*).

c. *Opercula broad, transverse, nearer together than in preceding species, inner margins oblique, apices subtruncately rounded.*

1579. **Purana guttularis**, *Walk.* (Cicada) *List Hom. Suppl.* p. 29 (1858); *Stål* (Leptopsaltria), *Berl. ent. Zeit.* x, p. 170 (1866); *Atkins. J. A. S. Beng.* liii, p. 227 (1885); *Dist. Mon. Orient. Cicad.* p. 37, t. xii, f. 20, *a*, *b* (1889).

Body above dull ochraceous; head with anterior curved striæ to front, marginal and transverse lines at anterior angles of vertex, margins of ocelli, and an oblique spot at inner margins of each eye black; pronotum with the anterior margin, two central longitudinal lines united posteriorly and outwardly emitting an angulated line, and the incisures black, the posterior margin distinctly pale ochraceous; mesonotum with a central line, the margins of two anterior obconical spots, faint traces of a broken lateral fascia on each side, and two small spots in front of cruciform elevation black; abdominal segmental margins piceous or black; body beneath concolorous, the abdominal tubercles black; striations to face, excluding lateral and apical areas, piceous; tegmina and wings hyaline, venation ochraceous or fuscous; tegmina with costal membrane and a spot at base of upper ulnar area pale ochraceous; transverse veins at bases of second and third and sometimes fifth apical areas, and small spots at the apices of longitudinal veins to apical areas, fuscous.

Length excl. tegm., ♂ & ♀, 19 to 20; exp. tegm. 60 millim.

Hab. Burma (*Brit. Mus.*).—Nias Island (*Modigliani*). Borneo; Sarawak (*Coll. Dist.*). Philippines (*Semper*).

Genus DUNDUBIA.

Dundubia, *Amy. & Serv. Hém.* p. 470 (1843); *Stål, Hem. Afr.* iv, p. 5 (1866); *Dist. Mon. Orient. Cicad.* p. 38 (1889).

Type, *D. mannifera*, Linn.

Distribution. Oriental and Malayan Regions; also found in North Australia.

Body long and robust; head somewhat triangularly elongate, about as long as pronotum, the front large and convex, about twice as broad at its base as the length of the anterior margins of the lobes of vertex, ocelli a little farther apart from eyes than from each other; pronotum almost as long as mesonotum, the lateral margins not prominently ampliated but distinctly toothed; abdomen a little longer than space between apex of head and base of cruciform elevation; tympana completely covered; opercula in male long and extending beyond middle of abdomen; rostrum scarcely reaching the posterior coxæ; anterior femora spined; tegmina and wings hyaline, the first with the venation normal, the apical areas eight in number, and the basal cell twice as long as broad.

a. *Opercula in male reaching penultimate abdominal segment, concavely sinuate on each side near base, and thence convexly ampliated, especially on inner margins, apices narrowed and obtusely rounded.*

1580. **Dundubia mannifera**, *Linn.* (Cicada) *Mus. Ad. Fried.* p. 84 (1754), excl. syn.; *Stål, Berl. ent. Zeit.* x, p. 170 (1866); *Dist. Mon. Orient. Cicad.* p. 39, t. iv, f. 17, *a, b*, and *var.* 10, *a, b* (1889).

Tettigonia vaginata, *Fabr. Mant. Ins.* ii, p. 266 (1787).
Cicada virescens, *Oliv. Enc. Méth.* v, p. 747 (1790).
Dundubia immacula, *Walk. List Hom.* i, p. 50 (1850).
Dundubia nigrimacula & sobria, *Walk. loc. cit.* p. 63.
Dundubia varians, *Walk.* (*nec Germ.*) *Walk. loc. cit.* p. 48.
Fidicina confinis, *Walk. J. Linn. Soc., Zool.* x, p. 92 (1867).
Stoll, Cig. f. 35.
Var. terpsichore, *Walk.* (Cephaloxys) *List Hom.* i, p. 239 (1850); *Atkins.* (Mogannia) *J. A. S. Beng.* liii, p. 233 (1885); *Dist.* (Dundubia) *Mon. Orient. Cicad.* p. 39, t. xii, f. 1, *a, b* (1889).

Body green, pale ochraceous, or green and dark ochraceous; abdomen above with some small lateral black spots, which are most distinct in the paler-coloured specimens; tegmina and wings pale hyaline, the venation and the costal membrane of tegmina pale brownish or ochraceous; rostrum just passing the intermediate coxæ.

The var. *terpsichore*, Walk., differs only from the typical form of the species by the somewhat shorter opercula, by a slight bronzy tinge to the apices of the tegmina in the male, and by the

obsolete central mesonotal spots being outwardly margined with black.

Length excl. tegm., ♂ 30 to 45, ♀ 27 to 35; exp. tegm., ♂ & ♀, 85 to 115 millim.

Hab. Sikhim. Assam; Nága Hills (*Ind. Mus.*), N. Khási Hills (*Chennell*). Sibsagar (*Ind. Mus.*). Burma; Bhamo (*Fea*).

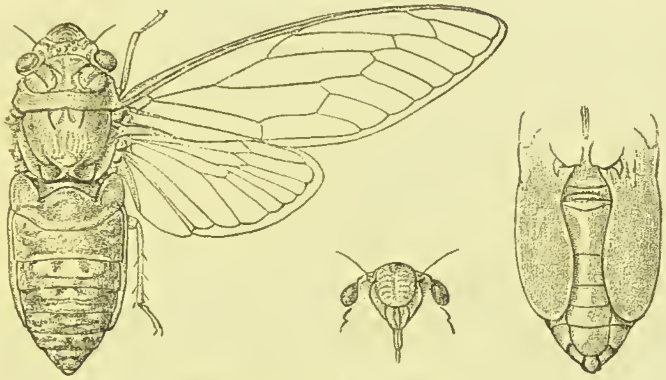


Fig. 44.—*Dundubia mannifera.*

Moulmein (*Ind. Mus.*). Tenasserim (*Limborg*); Myitta Valley (*Doherty*).—Malay Peninsula. Sumatra. Java. Borneo. Celebes. Philippines. China.

This is a most abundant species and found throughout the East.

aa. *Opercula in male very narrow and extending beyond middle of abdomen, slightly curved outwardly, concave on each side near base, the apices broadly convex.*

1581. **Dundubia emanatura**, *Dist. A. M. N. H.* (6) iii, p. 51 (1889); *id. Mon. Orient. Cicad.* p. 41, t. viii, f. 3, *a*, *b* (1889).

Head and thorax above either greenish or ochraceous; abdomen brownish-ochraceous; head with a narrow, reticulated, transverse black fascia between the eyes enclosing the ocelli, and a black spot at the anterior lateral angles of the vertex, eyes brownish; pronotum with narrow, black, lateral marginal fasciæ; body beneath and legs ochraceous; apices of posterior tibiæ infuscated; tegmina and wings pale hyaline, the venation pale greenish-ochraceous; rostrum reaching the intermediate coxæ; in the female type the abdomen has a black lateral marginal fascia on each side.

Length excl. tegm., ♂, 26; exp. tegm. 72 millim.

Hab. Karwar (*Atkinson*). Nilgiri Hills (*Hampson*).

The black lateral margins to the pronotum and the narrow opercula in the male render this species very distinct.

aaa. *Opercula in male elongate and narrow, reaching penultimate abdominal segment, their basal areas inwardly curved, their apical areas long, slender, acutely pointed at apices.*

1582. **Dundubia intemerata**, *Walk. J. Linn. Soc., Zool.* i, p. 84 (1856); *Atkins. J. A. S. Beng.* liii, p. 224 (1885); *Dist. Mon. Orient. Cicad.* p. 42, t. iv, f. 1, *a*, *b* (1889).

♂ ♀ Body green, ochraceous, or with the abdomen above ochraceous; ocelli red; eyes dark castaneous or fuscous; rostrum, coxæ, tarsi, and apices of tibiæ ochraceous; apex of rostrum and the tarsal claws black; tegmina and wings pale hyaline, their extreme bases, venation, and costal membrane of the first greenish-ochraceous; rostrum about reaching the posterior coxæ, a character belonging to the following genus (*Cosmopsaltria*), but the structure of the head is of the strictly *Dundubian* character.

Length excl. tegm., ♂ 28 to 30, ♀ 26 to 28; exp. tegm., ♂ 78 to 85, ♀ 74 to 78 millim.

Hab. Assam; Margherita (*Doherty*), Khási Hills (*Chennell*), Sibsagar (*Ind. Mus.*). Tenasserim; Myitta Valley (*Doherty*).—Malay Peninsula.

Mr. Annandale states that at certain seasons this Cicada forms a regular article of diet among the Siamese inhabitants of Patulung, who capture it by the following peculiar method:—"Immediately after the sun had set several of the natives gathered in an open space, round a fire of brushwood or a number of torches fastened to stakes stuck in the ground, and commenced to clap their hands in unison, observing a regular time and rhythm. Very soon, if they were fortunate, the Cicadas flew out from the undergrowth of the surrounding orchards and jungle, and alighted on the persons of their captors, who had no difficulty in picking off the insects." (Proc. Zool. Soc. 1900, p. 859.)

Genus COSMOPSALTRIA.

Cosmopsaltria, *Stål, Hem. Afr.* iv, p. 5 (1866); *id. Berl. ent. Zeit.* x, p. 170 (1866).

Type, *C. doryca*, Boisd., from Papuana.

Distribution. Oriental and Malayan Regions; also recorded from Corea and Japan.

Body moderately long and robust, head as long as breadth between eyes, and including eyes as wide as base of mesonotum, with the front not twice as broad at base as anterior margins of the lobes of vertex, lateral margins obliquely continuous to front or very slightly sinuate; pronotum about as long as head, its lateral margins scarcely ampliated, but distinctly toothed or angulated; mesonotum slightly longer than pronotum; abdomen short, about as long as space between apex of head and base of cruciform elevation; tympana covered; opercula in male broad, either just or longly passing middle of abdomen, well separated

and not overlapping, more or less concavely sinuate on each side at basal areas, their apices rounded or obliquely truncate; rostrum reaching, sometimes passing, the posterior coxæ; tegmina and wings hyaline; greatest breadth of tegmina about a third of length; venation normal; basal cell much longer than broad.

A. *Rostrum almost reaching apex of first abdominal segment.*

a. *Opercula in male almost reaching apex of fourth abdominal segment, concavely narrowed on each side near base, thence widened to apices, which are rounded and situate on abdominal margins.*

1583. **Cosmopsaltria oopaga**, *Dist. Tr. E. S.* 1881, p. 640; *Atkins. J. A. S. Beng.* liii, p. 227 (1885); *Dist. Mon. Orient. Cicad.* p. 46, t. v, f. 9, *a*, *b* (1889).

Head dull ochraceous; posterior lateral margins of front black, the two basal ocelli surrounded with black which extends to posterior margin; pro- and mesonota pale olivaceous, the first with a central longitudinal ochraceous fascia with its margins

Fig. 45.—*Cosmopsaltria oopaga.*

black and united posteriorly; mesonotum with two anterior black-margined obconical spots, on each side of which is a small spot, an anterior lateral fascia, a curved basal fascia, and a spot on each anterior angle of cruciform elevation, black; abdomen dull ochraceous inclining to olivaceous, laterally sparingly greyishly pubescent and with an indistinct lateral series of fuscous spots; body beneath and legs pale ochraceous or olivaceous, bases of tibiæ, apices of anterior and intermediate tibiæ, and the anterior and intermediate tarsi black; tegmina and wings hyaline, the venation olivaceous with fuscous intervals.

Length excl. tegm., ♂, 39; exp. tegm. 96 millim.

Hab. Burma (*Coll. Dist.*).—Siam.

B. *Rostrum reaching posterior coxæ.*

b. *Opercula in male reaching apical abdominal segment, concavely narrowed at base, thence widened and moderately convex to apices, which are rounded and situate on lateral abdominal areas.*

1584. **Cosmopsaltria feæ**, *Dist. Mon. Orient. Cicad.* p. 101, t. xv, f. 20 (1892).

Body above brownish-ochraceous and moderately pilose; head with a spot at apex of front and the anterior angles of the vertex ochraceous; pronotum with narrow anterior margin, a narrow central longitudinal fascia, and broad posterior and lateral margins ochraceous; extreme hind margin narrowly black; mesonotum with two obscure obconical spots at anterior margin (which are outwardly margined with black) and a large obscure marginal fascia on each side pale castaneous; cruciform elevation ochraceous: body beneath and legs pale ochraceous; face brownish-ochraceous; anterior and intermediate tibiæ and tarsi black, the tibiæ streaked with ochraceous; tegmina and wings pale hyaline, venation ochraceous and blackish, mostly blackish; tegmina with the costal membrane ochraceous with a central black line; postcostal area ochraceous; extreme base narrowly ochraceous.

Length excl. tegm., ♂, 45; exp. tegm. 122 millim.

Hab. Burma; Karennee (*Fea*).

C. *Rostrum reaching middle of first abdominal segment.*

c. *Opercula in male reaching base of last abdominal segment, strongly compressed at base, then much widened and convex on each side, their apices narrowed and obtusely angulate and situate on lateral abdominal margins.*

1585. **Cosmopsaltria andersoni**, *Dist. A. M. N. H.* (5) xi, p. 170 (1883); *id. Mon. Orient. Cicad.* p. 46, t. v, f. 6, *a*, *b* (1889).

Head, pronotum, and mesonotum olivaceous; head with the lateral margins of front, area of ocelli, and a small spot on each side of same black; pronotum with a central longitudinal ochraceous fascia margined with black, widest anteriorly and compressed about centre, and with a small curved black line behind the eyes; mesonotum with two anterior obconical spots margined with black, on each side of which is a small discal streak, a long curved black spot on each side of base, and anterior angles of cruciform elevation black; abdomen dull dark ochraceous; body beneath and legs pale ochraceous; subapical annulations to anterior femora, upper surfaces and apices of anterior tibiæ, bases and apices of intermediate and posterior tibiæ, tarsi, apex of rostrum, and apical portion of last abdominal segment black; tegmina and wings hyaline, the first with costal membrane and basal portion of venation ochraceous, remaining venation either black or olivaceous,

and a black claval streak; wings with the veins black or ochraceous, outer claval margin and inner claval streak fuscous.

Length excl. tegm. 32; exp. tegm. 88 millim.

Hab. Tenasserim; Mergui (*Anderson*).—Cochin China.

Genus **HAPHSA.**

Haphsa, *Dist. A. M. N. H.* (7) xv, p. 64 (1905).

Type, *H. nicomache*, Walk.

Distribution. Oriental Region and Yunnan.

Head (including eyes) about as broad as mesonotum, considerably shorter than breadth between eyes, lateral margins obliquely sinuate from eyes to apex; pronotum distinctly shorter than mesonotum, subacutely toothed before middle of lateral margins; abdomen short, not longer than space between head and base of cruciform elevation; tympana covered, tympanal flaps about as long as broad; rostrum reaching or passing the posterior coxæ; opercula in male broad, their inner margins contiguous, nearly equally broad throughout, their apices convex, their outer margins very obsoletely sinuate; tegmina and wings hyaline.

1586. **Haphsa nicomache,** *Walk.* (Dundubia) *List Hom.* i, p. 67 (1850); *Atkins. J. A. S. Beng.* liii, p. 224 (1885); *Dist.* (Cosmopsaltria) *Mon. Orient. Cicad.* p. 57, t. iv, f. 12, *a*, *b* (1890).
Cicada delineata, *Walk. Ins. Saund., Hom.* p. 17 (1858).

Head, pronotum, and mesonotum ochraceous; head with lateral striæ to front, two large transverse spots on lateral margins of

Fig. 46.—*Haphsa nicomache.*

vertex, and the area of the ocelli black; pronotum with two central longitudinal black lines united posteriorly, the incisures and transverse spots on lateral marginal areas black; mesonotum with three central discal lines united posteriorly, on each side of which is a small anterior spot, a broad lateral fascia containing a small ochraceous spot, and two spots in front of the cruciform elevation, black; abdomen black, the segmental margins, some lateral spots, and the tympanal coverings more or less ochraceous;

body beneath and legs ochraceous; transverse striæ to face, a fascia between face and eyes, and apical area of abdomen black; tegmina and wings hyaline, venation ochraceous or fuscous, tegmina with the costal membrane ochraceous, the postcostal area and transverse veins at bases of second and third apical areas infuscate.

Length excl. tegm. 25 to 28; exp. tegm. 78 to 82 millim.

Hab. Sikhim (*Ind. Mus. & Coll. Dist.*); Kimpti Falls, Mussooree (*Mackinnon*). Assam; Margherita (*Doherty*), Nága Hills (*Coll. Dist.*).

1587. **Haphsa velitaris**, *Dist.* (Cosmopsaltria) *A. M. N. H.* (6) xx, p. 18 (1897).

In colour and markings very closely allied to *H. nicomache*, but differing from that species by the greater length of the rostrum, which considerably passes the posterior coxæ, and not only just extending beyond their apex as in Walker's species, the opercula in the male are only half the length of the abdomen; the principal colour-difference is found in the dorsal surface of the abdomen, which is more castaneous and less black than in *H. nicomache.*

Length excl. tegm., ♂, 27; exp. tegm. 80 millim.

Hab. Burma; North Chin Hills (*Watson*).

Genus PLATYLOMIA.

Platylomia, *Stål* (*nom. nec descript.*), *Öfv. Vet.-Ak. Förh.* 1870, p. 708 note; *Dist. A. M. N. H.* (7) xv, p. 65 (1905).

Type, *P. spinosa*, Fabr., a Malayan species.

Distribution. Oriental and Malayan Regions; also found in Tonkin and Hainan.

Head (including eyes) about as wide or a little wider than base of mesonotum, about or almost as long as breadth between eyes; pronotum centrally about or almost as long as mesonotum (excluding basal cruciform elevation), its lateral margins always distinctly, sometimes strongly, and generally acutely toothed; abdomen considerably longer than space between apex of head and base of cruciform elevation; tympana completely covered; rostrum reaching or passing the posterior coxæ; opercula more or less elongate, concavely sinuate on each side of basal area, their apices rounded or subacute, occupying lateral abdominal areas, always well separated and seldom reaching disk; tegmina and wings hyaline, the venation sometimes fuscously spotted.

I use Stål's name for this genus, as the type he proposed (*Cic. flavida*, Guér.) is included in it. His description, however, cannot be accepted, as, evidently referring to Guérin's figure only, he states, "ramo venæ ulnaris interioris recto vel leviter curvato," a character given by the artist and not found in the species.

A. *Opercula in male with their apices rounded.*

b. *Front somewhat globosely produced.*

c. *Opercula only extending to about half the length of abdomen.*

1588. **Platylomia amicta**, *Dist.* (Dundubia) *A. M. N. H.* (6) iii, p. 51 (1889); *id.* (Cosmopsaltria) *Mon. Orient. Cicad.* p. 43, t. viii, f. 4, *a, b* (1890).

Body above brownish-ochraceous; head with striæ and two central longitudinal lines to front, a broad oblique fascia on each lateral area of vertex, and area of ocelli black; pronotum with two central longitudinal lines, incisures, anterior margin, and inner edge of posterior margin black, posterior and lateral margins paler in hue, the last crossed by an oblique black fascia emerging from behind the eyes; mesonotum with five fasciæ (one central and longitudinal, two short and directed obliquely inward, the largest on each lateral area—not reaching anterior margin) and two small rounded spots in front of cruciform elevation black; body beneath and legs brownish-ochraceous, femora more or less streaked with black; tibiæ, tarsi, apex of rostrum, a spot between face and eyes, and apical margin of face black; tegmina and wings hyaline, the venation fuscous.

Length excl. tegm., ♂, 48; exp. tegm. 115 millim.

Hab. Karwar (*Ind. Mus.*).

bb. *Front not prominently globosely produced.*

Opercula in male only reaching third abdominal segment; tegmina with bases of second and third apical areas infuscated.

1589. **Platylomia vibrans**, *Walk.* (Dundubia) *List Hom.* i, p. 54 (1850); *Atkins. J. A. S. Beng.* liii, p. 224 (1885); *Dist.* (Cosmopsaltria) *Mon. Orient. Cicad.* p. 50, t. iv, f. 2, *a, b* (1890).

Dundubia lateralis, *Walk. List Hom.* i, p. 61 (1850); *Atkins. J. A. S. Beng.* liii, p. 224 (1885).

Head and thorax above ochraceous; head with the lateral striations and two spots at apex of front, area of ocelli, a spot at anterior angle, and an oblique fascia on lateral area of vertex black; pronotum with two central longitudinal fasciæ angulated and meeting posteriorly, the incisures, and three small spots on each lateral margin black or piceous; mesonotum with seven linear fasciæ, the central one longest, straight and longitudinal, on each side of this a shorter and inwardly directed fascia, followed by a very short one on anterior margin, and a longer somewhat broken fascia on each lateral area, and two spots in front of cruciform elevation, black; abdomen very pale castaneous, the segmental incisures narrowly edged with ochraceous and black; some obscure, irregular, transverse, discal fasciæ, and a lateral series of segmental spots piceous; tympanal coverings dull ochraceous; head beneath, sternum, legs, and opercula ochraceous; transverse striations to face, fascia between eyes

and face, apex of rostrum, apices of tibiæ, and margins of opercula (broadest at apices) black or piceous; abdomen beneath very pale castaneous, with some piceous discal spots; tegmina and wings hyaline, venation pale fuscous; tegmina with the costal membrane ochraceous, and the transverse veins at the bases of the second and third apical areas infuscated; abdomen sparsely finely pilose.

Length excl. tegm., ♂, 35 to 38; exp. tegm. 85 to 90 millim.

Hab. Assam; Margherita (*Doherty*), Nága Hills (*Chennell*). Sylhet (*Brit. Mus.*).—Malay Peninsula.

Opercula in male not reaching penultimate abdominal segment; tegmina unspotted.

1590. **Platylomia similis**, *Dist.* (Dundubia) *A. M. N. H.* (6) i, p. 292 (1888); *id.* (Cosmopsaltria) *Mon. Orient. Cicad.* p. 45, t. v, f. 10, *a*, *b* (1889).

Head and thorax above pale greenish; abdomen pale castaneous; head with the area of the ocelli somewhat piceous; pronotum with the edges of the posterior margin and the inner edge of the anterior margin black; mesonotum with a central black longitudinal linear fascia, on each side of which is a short oblique black fascia outwardly margined with ochraceous, followed by a small anterior black spot, and with two black spots in front of cruciform elevation; abdomen above with a short, broad, oblique, cretaceously tomentose fascia on each side of basal area; body beneath, opercula, and legs pale greenish or greenish-ochraceous; rostrum with the apex black and reaching the posterior coxæ; tegmina and wings hyaline, the venation greenish-ochraceous, in some places black; costal membrane of tegmina greenish.

Length excl. tegm., ♂, 50; exp. tegm. 122 millim.

Hab. Sikhim and Assam (*Ind. Mus.*).

This species above has a strong superficial resemblance to *P. radha*, Dist., which is described on p. 105.

Opercula in male somewhat narrow and reaching penultimate abdominal segment; tegmina unspotted.

1591. **Platylomia larus**, *Walk.* (Dundubia) *List Hom. Suppl.* p. 7 (1858); *Dist.* (Cosmopsaltria) *Mon. Orient. Cicad.* p. 44, t. v, f. 1, *a*, *b*, and *var.* t. iv, f. 13 (1889).
Cicada—"The Knife-grinder," *Emerson Tennent, Nat. Hist. Ceyl.* p. 432, fig. (1861).

Head and thorax above greenish-ochraceous; abdomen above and beneath pale castaneous; head with the lateral areas of front, area of ocelli, an angulated fascia in front of eyes, and a small spot near inner margin of each eye black; pronotum with two central longitudinal, posteriorly connected fasciæ, on each side of which is a short curved discal fascia, the incisures, and edges of lateral margins black; mesonotum with five fasciæ (one

central and longitudinal, two short and angulated, the outer two longer, irregular and angularly curved) and two spots in front of cruciform elevation black; abdomen above with some central black discal spots; body beneath, sternum, legs, and opercula ochraceous or greenish-ochraceous; apices of anterior femora, bases and apices of anterior and intermediate tibiæ, bases of posterior tibiæ, and anterior and intermediate tarsi black; tegmina and wings hyaline, the venation ochraceous or greenish, in some places black.

Length excl. tegm., ♂, 32 to 38; exp. tegm. 84 to 100 millim.

Hab. Bombay (*Leith*). Nilgiri Hills; Koonor (*Hampson*). Ceylon (*Green*).

This is the species figured by Tennent in his 'Natural History of Ceylon,' and referred to by him as "The Knife-grinder." He describes it as resting high up on the bark of a tree, and making the forest re-echo with a long-sustained noise so curiously resembling that of a cutler's wheel that the creature producing it has acquired the highly appropriate name of the "Knife-grinder."

Opercula in male reaching base of last abdominal segment; tegmina unspotted.

1592. **Platylomia nagarasingna**, *Dist.* (Dundubia) *Tr. E. S.* 1881, p. 635; *Atkins.* (Dundubia) *J. A. S. Beng.* liii, p. 225 (1885); *Dist.* (Cosmopsaltria) *Mon. Orient. Cicad.* p. 44, t. iv, f. 14, *a*, *b* (1889).

Body above castaneous; head with centre of front and an oblique fascia on each side of ocelli ochraceous; pronotum with a central fascia and the lateral and posterior margins ochraceous; mesonotum with two anterior, central, black-margined obconical spots, basal cruciform elevation ochraceous; abdomen more or less greyishly pilose, with a lateral fascia of greyish pile on each side, the apex greyishly tomentose; body beneath and legs pale ochraceous, more or less greyishly tomentose; anterior tibiæ, apices of intermediate and posterior tibiæ, the tarsi, and apex of rostrum piceous; tegmina and wings hyaline, the venation ochraceous or fuscous; tegmina with the costal membrane ochraceous; rostrum reaching apex of posterior coxæ.

Length excl. tegm. 34 to 38; exp. tegm. 88 to 95 millim.

Hab. Burma (*Bingham*). Tenasserim; Myitta (*Doherty*).—Cochin China.

B. *Opercula in male with their apices obtusely angulate.*

Opercula reaching fourth abdominal segment; tegmina spotted.

1593. **Platylomia umbrata**, *Dist.* (Cosmopsaltria) *A. M. N. H.* (6) i, p. 293 (1888); *id. Mon. Orient. Cicad.* p. 53, t. v, f. 11, *a*, *b* (1890).

Head and thorax above obscure olivaceous; head with the

lateral margins to front, area of ocelli, and some irregular spots on each lateral area of vertex black; pronotum with two central fasciæ (ampliated anteriorly and posteriorly), the incisures, inner edge of posterior margin, and a spot, or spots, near lateral angles black; mesonotum with two black-margined central obconical spots, a central lanceolate fascia, and two spots in front of cruciform elevation black; abdomen above and beneath largely suffused with dull black shadings; body beneath olivaceous; a central fascia to face, fascia between face and eyes, inner margins and apices of femora, and the tibiæ more or less blackish;

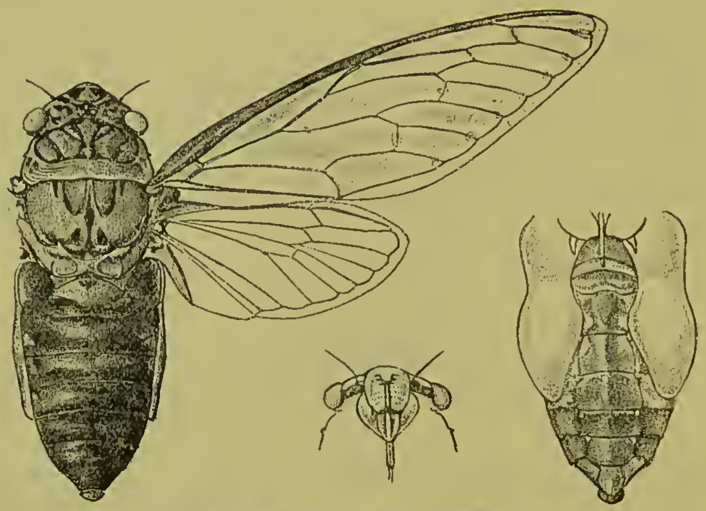


Fig. 47.—*Platylomia umbrata.*

opercula olivaceous, their basal and apical areas more or less piceous; tegmina and wings hyaline, venation fuscous; tegmina with extreme base, costal membrane, postcostal area, transverse veins at bases of second, third, fifth, and seventh apical areas, and apices of longitudinal veins to apical areas, fuscous; rostrum just passing posterior coxæ, with its apex piceous.

Length excl. tegm., ♂, 46; exp. tegm. 120 millim.

Hab. Sikhim (*Coll. Dist.*). Assam; Nága Hills (*Ind. Mus.*). Burma; Bhamo (*Fea*).

Opercula just passing posterior margin of penultimate abdominal segment; tegmina unspotted.

1594. **Platylomia assamensis**, *Dist. A. M. N. H.* (7) xv, p. 65 (1905).

Allied to *P. umbrata*, Dist., and differing principally by the size and shape of the opercula in the male, which just pass the posterior margin of the penultimate abdominal segment, with their apices suddenly obtusely angulate; the tegmina are shorter, and thus apparently broader, and are without the marginal spots at

the apices of the longitudinal veins to the apical areas and the infuscated transverse veins at the bases of fifth and seventh apical areas; the markings of the mesonotum are similar to those of *P. umbrata*, but there is also a distinct black elongate spot on each lateral area.

Length excl. tegm., ♂, 40; exp. tegm. 111 millim.

Hab. Assam (*Atkinson Coll., Brit. Mus.*).

C. *Opercula in male with their apices narrowed, angulate, and directed outward.*

Opercula reaching penultimate abdominal segment; tegmina unspotted.

1595. **Platylomia radha**, *Dist.* (Dundubia) *Tr. E. S.* 1881, p. 634; *Atkins. J. A. S. Beng.* liii, p. 225 (1885); *Dist.* (Cosmopsaltria) *Mon. Orient. Cicad.* p. 54, t. iv, f. 9, *a, b* (1890).

Body above pale castaneous; head with the area of the ocelli black; pronotum with the lateral and posterior margins and a very narrow anterior margin ochraceous, the first very narrowly edged with black, and the second inwardly margined with two transverse black spots; mesonotum with two black-margined obconical spots, followed on each side by a small black spot on anterior margin, five indistinct black basal spots, three in front of cruciform elevation and one on each side of same; abdomen a little darker castaneous, the segmental margins piceous; body beneath, legs and opercula dull ochraceous; tegmina and wings hyaline, venation pale fuscous; tegmina with the costal membrane, basal cell, and claval area dull ochraceous; extreme base of wings and their claval area dull, dark ochraceous; rostrum reaching the posterior coxæ.

Length excl. tegm. 53; exp. tegm. 124 millim.

Hab. Sikhim (*Ind. Mus.*). Assam; Nága Hills (*Doherty*). Madras Presidency (*Coll. Dist.*). Burma; Teinzo (*Fea*).

Opercula in male reaching penultimate abdominal segment; tegmina spotted.

1596. **Platylomia saturata**, *Walk.* (Dundubia) *List Hom. Suppl.* p. 6 (1858); *Dist.* (Cosmopsaltria) *Mon. Orient. Cicad.* p. 54, t. v, f. 17, *a, b* (1890).

Dundubia obtecta, *Walk.* (*nec. Fabr.*) *List Hom.* i, p. 47 (1850).

Head and thorax above olivaceous; pronotum with two central longitudinal fasciæ (inwardly curved and united posteriorly), the incisures, and a small spot on lateral margins black; mesonotum with a central longitudinal fascia connected with two large anterior fused spots, a very broad oblique fascia on each lateral area, and two spots in front of cruciform elevation black; abdomen shining piceous, the segmental margins at lateral areas somewhat broadly ochraceously pilose; head beneath, sternum,

legs, and opercula olivaceous, the last with an ochraceous tint; abdomen beneath ochraceous; femora with a short black line on inner margin; tegmina and wings hyaline, venation ferruginous; tegmina with a bright olivaceous tinge most pronounced on the basal half, the extreme base and elaval area ferruginous, costal membrane and postcostal area fuscous, transverse veins at bases of second, third, fifth, and seventh apical areas broadly infuscate, and a series of marginal spots at apices of longitudinal veins to apical areas; wings with extreme base and margins of anal area ferruginous.

Length excl. tegm., ♂, 40 to 45; exp. tegm. 106 to 130 millim.

Hab. Nepal (*Hardwicke*). Ranikhet (*Coll. Dist.*). Sikhim (*Brit. Mus.*). Darjiling (*Brit. Mus.*). Sylhet (*Coll. Sign.*). Assam; Nága Hills (*Doherty*).

This is a variable species as regards the tinting of the tegmina, which are sometimes clear and not shaded on the basal halves; it is even apparently more unusually variable in the position of the opercula, which in some specimens examined, probably owing to a shrinkage of the abdomen, reach its apex; in other examples the apices of the opercula are much less angularly produced than in typical specimens.

Miss Dendy, who collected specimens of this species at Darjiling, which she presented to the British Museum, wrote: "These creatures make a noise like a watchman's rattle in the trees at night."

Opercula in male medially lobate on each side, reaching posterior margin of fourth abdominal segment; tegmina spotted.

1597. **Platylomia ficulnea**, *Dist.* (Cosmopsaltria) *Mon. Orient. Cicad.* p. 102, t. xv, f. 21 (1892).

Head, pronotum, and mesonotum ochraceous tinged with greenish; abdomen pale castaneous, its upper surface tomentose; pronotum with a narrow anterior margin and two angulated spots on posterior margin castaneous; mesonotum with a large, central, castaneous angulated spot, commencing at cruciform elevation and extending to anterior margin, two ochraceously margined obconical spots and the lateral areas olivaceous; cruciform elevation ochraceous, with a white tomentose spot on each side; abdomen with some segmental white tomentose spots, the segmental margins blackish; tympanal coverings pale olivaceous; body beneath and legs ochraceous, the tibiæ and tarsi somewhat darker in hue; lateral margins of abdomen somewhat whitely tomentose; tegmina and wings hyaline, venation ochraceous and fuscous; tegmina with the basal cell and costal membrane ochraceous, transverse veins at bases of second, third, fourth, fifth, and seventh apical areas somewhat broadly infuscate, a marginal series of fuscous spots at apices of longitudinal veins to apical areas, and a somewhat indistinct pale fuscous, linear, longitudinal fascia to the

apical areas; claval area pale fuscous; wings with the margins of the anal area fuscous.

Length excl. tegm., ♂, 54; exp. tegm. 134 millim.

Hab. Assam (*Coll. Dist.*). Burma; Karennee (*Fea*), Karen Hills (*Doherty*).

Genus **MEIMUNA.**

Meimuna, *Dist. A. M. N. H.* (7) xv, p. 67 (1905).

Type, *M. tripurasura*, Dist.

Distribution. Oriental and Malayan Regions; Corea, China, and Japan.

Head (including eyes) about as broad as base of mesonotum, shorter than breadth between eyes, lateral margins obliquely continuous to face or very slightly sinuate; pronotum distinctly shorter than mesonotum, its lateral margins distinctly and generally acutely toothed before middle; abdomen considerably longer than space between apex of head and base of cruciform elevation; tympana covered, tympanal flaps about as long as broad; rostrum reaching the posterior coxæ; opercula obliquely divergent, sometimes very short; tegmina and wings hyaline.

A. *Tegmina unspotted.*

a. *Opercula reaching fourth abdominal segment, well separated at base, apices obtuse.*

1598. **Meimuna tripurasura,** *Dist.* (Dundubia) *Tr. E. S.* 1881, p. 635; *Atkins. J. A. S. Beng.* liii, p. 225 (1885); *Dist.* (Cosmopsaltria) *Mon. Orient. Cicad.* p. 55, t. iv, f. 8, *a*, *b* (1890).

Head, pronotum, and mesonotum ochraceous; head with a large spot at base and transverse striæ to front, two large oblique

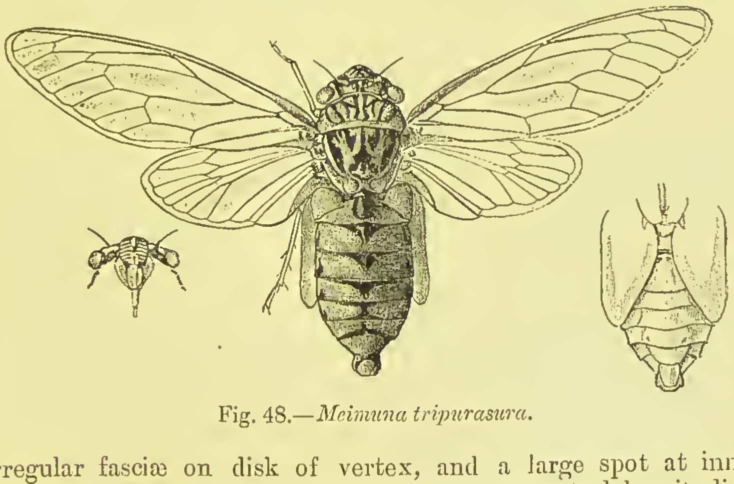


Fig. 48.—*Meimuna tripurasura.*

irregular fasciæ on disk of vertex, and a large spot at inner margins of eyes black; pronotum with two central longitudinal fasciæ, with a curved discal fascia on each side, and the incisures

black; mesonotum with a central longitudinal lanceolate spot, on each side of which is an irregularly black-margined obconical spot, followed by a small anterior spot, and a wide submarginal fascia, black; abdomen dull sanguineous, with a central segmental series of transverse spots (sometimes very large and subconfluent) and lateral segmental series of smaller spots black; head beneath and sternum greyishly pubescent; abdomen beneath dull sanguineous; opercula in male pale sanguineous; legs ochraceous; tegmina and wings hyaline, venation ochraceous on basal, fuscous on apical areas; costal membrane to tegmina ochraceous.

Length excl. tegm., ♂, 33; exp. tegm. 85 millim.

Hab. Sikhim (*Ind. Mus.*). Assam; Margherita (*Doherty*), N. Khási Hills (*Chennell*).

a'. *Opercula reaching penultimate abdominal segment, their apices acutely pointed.*

1599. **Meimuna tavoyana**, *Dist.* (Dundubia) *A. M. N. H.* (6) i, p. 292 (1888); *id.* (Cosmopsaltria) *Mon. Orient. Cicad.* p. 55, t. v, f. 4, *a*, *b* (1890).

Above resembling in size, general hue, and markings *M. tripurasura*, but differing remarkably from that species by the size and shape of the opercula, which have their apices somewhat acutely pointed and reaching the penultimate abdominal segment, with their outer lateral margins a little concave near base, convex about middle, and somewhat profoundly concave towards their apices, their colour is also pale olivaceous-green.

Length excl. tegm. 30; exp. tegm. 80 millim.

Hab. Burma (*Bingham*). Tenasserim; Tavoy (*Ind. Mus.*).

a². *Opercula reaching third abdominal segment; subtriangular, a little sinuate outwardly, obliquely straight inwardly, apices subacute.*

1600. **Meimuna ganameda**, *Dist.* (Cosmopsaltria) *Entomologist*, 1902, p. 256; *Melich. Hom. Ceylon*, p. 4 (1903).

♂. Head and pronotum greenish-ochraceous—possibly pale green in fresh specimens; head with black striæ on each side of front, leaving a pale spot at base and a smaller spot at apex, vertex with the area of ocelli connected with a lateral streak black; pronotum with two central lines connected anteriorly, two small spots at centre of posterior margin, and the incisures black; mesonotum with a central longitudinal line, on each side of which is a shorter and broader curved linear fascia, followed on each side by two smaller anterior spots, a linear fascia on each lateral area, and two spots in front of cruciform elevation, black; abdomen brownish-ochraceous, the lateral and basal areas paler ochraceous, sparingly greyishly pilose and with a small black spot on basal segment; sternum, rostrum, legs, and opercula pale ochraceous; abdomen beneath brownish-ochraceous; basal margin of face

striated with black, and a black fascia between face and eyes; apices of femora and tibiæ more or less piceous; tegmina and wings hyaline, venation ochraceous, here and there tinged with fuscous.

Length excl. tegm., ♂ 39, ♀ 31; exp. tegm., ♂ 110, ♀ 105 millim.

Hab. Ceylon; Pundaluoya (*Green*).

B. *Tegmina with transverse veins at bases of second and third apical areas infuscated.*

b. *Opercula reaching third abdominal segment, their outer margins subparallel, inwardly widest, but not meeting near posterior coxæ, inner margins oblique, apices obtusely angulate.*

1601. **Meimuna durga**, *Dist.* (Cosmopsaltria) *Tr. E. S.* 1881, p. 637; *Atkins. J. A. S. Beng.* liii, p. 226 (1885); *Dist. Mon. Orient. Cicad.* p. 56, t. iv, f. 6, *a, b* (1890).

Head, pronotum, and mesonotum dull ochraceous; head with an irregular basal spot and the anterior transverse striæ to front, area of ocelli reaching posterior margin, and two transverse fasciæ on each lateral area of vertex (the hindermost connected with posterior margin) black; pronotum with a narrow anterior margin, a central longitudinal fascia margined with black on each side, and a triangulated fascia on each lateral margin pale ochraceous, the incisures, two short discal fasciæ, inner posterior and inner and broad angulated outer lateral margins black; mesonotum with a lanceolate central fascia, on each side of which is a shorter, broader, and angulate fascia, followed by an anterior elongate spot, and a broad sublateral fascia (broken near anterior margin), two rounded spots near base, and a smaller one on each anterior branch of cruciform elevation black; abdomen pale castaneous, its disk piceous and gradually widening from base to apex, where it is entirely piceous; body beneath, legs, and opercula ochraceous; a fascia between face and eyes, anterior tibiæ and tarsi, apices of intermediate tibiæ and tarsi, and apex of rostrum piceous; opercula in male pale greenish; tegmina and wings hyaline, the venation more or less fuscous; tegmina with the costal membrane ochraceous, and the transverse veins at bases of second and third apical areas infuscated.

Length excl. tegm., ♂, 33; exp. tegm. 98 millim.

Hab. Assam; N. Khási Hills (*Chennell*); Nága Hills (*Ind. Mus.*).

b′. *Opercula reaching fourth abdominal segment, gradually narrowed from middle towards apices, which are obtusely angulate.*

1602. **Meimuna silhetana**, *Dist.* (Cosmopsaltria) *A. M. N. H.* (6) i, p. 295 (1888); *id. Mon. Orient. Cicad.* p. 62, t. vi, f. 1, *a, b* (1890).

Body above shining brownish-olivaceous; head with two apical

spots and striæ to front, an irregular transverse fascia across vertex, and the posterior margins of the eyes black; pronotum with two central longitudinal fasciæ with a curved linear discal spot on each side and the incisures black, basal margin greenish; mesonotum with a central lanceolate longitudinal fascia, on each side of which is a slightly oblique obconical spot, followed by a small anterior spot, and again by a short broad spot, a long fasciate spot on each lateral area, and two rounded spots in front of the cruciform elevation, black; abdomen above with the disk much shaded with shining piceous, posterior segmental margins greenish; body beneath very pale olivaceous with a greyish tinge; face with the apex and a central fascia black; apex of rostrum, apices of anterior tibiæ, anterior tarsi, and bases and apices of intermediate and posterior tibiæ fuscous; tegmina and wings hyaline, venation brownish; tegmina with costal membrane and base of upper ulnar area ochraceous, transverse veins at bases of second and third apical areas infuscated.

Length excl. tegm. 28; exp. tegm. 72 millim.

Hab. Sylhet.

b[2]. *Opercula reaching penultimate abdominal segment, subtriangular in shape.*

1603. **Meimuna microdon,** *Walk.* (Dundubia) *List Hom.* i, p. 55 (1850); *Atkins. J. A. S. Beng.* liii, p. 224 (1885); *Dist.* (Cosmopsaltria) *Mon. Orient. Cicad.* p. 57, t. iv, f. 16, *a*, *b* (1890).

Head and pronotum ochraceous tinged with olivaceous; head with an apical spot and anterior transverse striæ to front, area of ocelli reaching base of head, two transverse fasciæ on lateral areas of vertex, two small spots near base, and broad posterior margins of eyes black; pronotum with two central longitudinal fasciæ, on each side of which is a short curved discal fascia, and the incisures black; mesonotum black, with two anterior, discal, oblique fasciæ, followed on each side by a broad, inwardly oblique, and anteriorly notched fascia, posterior margin and cruciform elevation (excluding its anterior angles) ochraceously olivaceous; abdomen above black, segmental margins narrowly olivaceous; body beneath ochraceous tinged with olivaceous; femora beneath, anterior tibiæ and tarsi, bases and apices of intermediate and posterior tibiæ and tarsi, striæ to face, fascia between face and eyes, margins and apex of opercula, and apex of abdomen, piceous or black; tegmina and wings hyaline, the venation fuscous; tegmina with the transverse veins at bases of second and third apical areas infuscated.

Length excl. tegm., ♂, 30; exp. tegm. 90 millim.

Hab. "North India" (*Wallich, Brit. Mus.*). Sikhim (*Coll. Dist.*).

Genus POMPONIA.

Pomponia, *Stål, Hem. Afr.* iv, p. 6 (1866); *Berl. ent. Zeit.* x, p. 171 (1866); *Dist. Mon. Orient. Cicad.* p. 68 (1890).

Type, *P. fusca*, Oliv.

Distribution. Oriental Region, China and Japan.

Head (including eyes) about as wide as base of mesonotum, its length about or nearly equal to space between eyes, ocelli much farther apart from eyes than from each other, front anteriorly convex and slightly prominent; pronotum with the lateral margins moderately ampliate and sinuate, the posterior angles dilated, a little shorter than mesonotum; mesonotum with the disk moderately convex; abdomen in male longer than space between apex of head and base of cruciform elevation, tympanal coverings complete; opercula in male short and transverse; rostrum passing posterior coxæ; anterior femora spined beneath; tegmina and wings hyaline, the first usually more or less maculate, basal cell longer than broad, apical areas eight.

A. *Tegmina maculate and marginally spotted.*

a. *Opercula transverse, their posterior margins oblique, their inner angles nearly meeting.*

1604. **Pomponia fusca**, *Oliv.* (Cicada) *Enc. Méth.* v, p. 749, t. cxi, f. 3 (1790); *Stål* (Pomponia), *Berl. ent. Zeit.* x, p. 171 (1866); *id. Öfv. Vet.-Ak. Förh.* 1870, p. 710; *Dist. Mon. Orient. Cicad.* p. 70, t. vii, f. 10, *a*, *b* (1890).
Dundubia linearis, cinctimanus, ramifera, urania, *Walk. List Hom.* i, pp. 48, 53, & 64.
Pomponia linearis, *Stål, Berl. ent. Zeit.* x. p. 171 (1866); *Atkins. J. A. S. Beng.* liii, p. 228 (1885).
Stoll, Cig. fig. 36.

Head, pronotum, and mesonotum greenish-ochraceous; head with the anterior margin of front, an irregular central fascia to vertex enclosing ocelli, a spot at inner margins of eyes, and the anterior lateral angles of vertex dark olivaceous; pronotum with a broad central longitudinal fascia, two large oblique spots on each lateral area, and a spot on the lateral margins brownish-olivaceous; mesonotum with a lanceolate central fascia, on each side of which is a large obconical spot, followed by a small anterior spot, a broad submarginal fascia, two spots in front of cruciform elevation and sometimes the whole frontal area of same, brownish-olivaceous; abdomen pale castaneous, sparingly greyishly pilose, the segmental margins piceous; head beneath, sternum, and legs pale greenish; upper and apical areas of face, a spot between face and eyes, anterior tibiæ, apices of intermediate tibiæ, a spot near apices of femora, apices of anterior and intermediate tarsi, apex of rostrum, and a spot between intermediate and posterior coxæ dark fuscous; abdomen beneath dark ochraceous; tegmina and

wings hyaline; tegmina with the costal membrane greenish, transverse veins at bases of second, third, fourth, fifth, seventh, and eighth apical areas infuscated, and a marginal series of small fuscous spots at apices of longitudinal veins to apical areas, venation ochraceous, in some places black, basal cell and claval margins brownish-ochraceous; wings with venation brownish-ochraceous, claval margins darker in hue.

Length excl. tegm., ♂, 35 to 50; exp. tegm. 87 to 125 millim.

Hab. Sylhet (*Brit. Mus.*). Assam; Margherita (*Doherty*), Nága Hills (*Ind. Mus.*); Sibsagar (*Ind. Mus.*); Cachar (*Judge*); Nilgiri Hills (*Hampson*).—Malay Peninsula. Java. Philippines. Japan.

a'. *Opercula inwardly and outwardly oblique, their apices broadly convex, inwardly nearly meeting.*

1605. **Pomponia lactea**, *Dist. A. M. N. H.* (5) xx, p. 229 (1887); *Mon. Orient. Cicad.* p. 71, t. vii, f. 18, *a*, *b* (1890).

Body above ochraceous, head with the front, the area of the ocelli, and a transverse streak in front of eyes reddish-ochraceous; pronotum with the whole disk reddish-ochraceous, and with an indistinct central longitudinal fascia, the incisures a little darker, and the margins pale ochraceous; mesonotum obscure ochraceous, with two obscure central obconical spots, on each side of which is a short anterior linear spot, a broad sublateral fascia, and a large spot in front of the cruciform elevation, castaneous; abdomen with a broad central castaneous fascia which is outwardly notched and channelled, and a lateral series of small spots of the same colour; body beneath and legs ochraceous; apices of femora, bases and apices of tibiæ, tarsi, a spot on apical segment of abdomen, and apex of rostrum castaneous; tegmina and wings hyaline with a milky-white suffusion or reflection; tegmina with the venation alternately ochraceous and castaneous, costal membrane and a small costal spot at base of upper ulnar area ochraceous; transverse veins at bases of apical areas more or less infuscated, a marginal series of pale fuscous spots at apices of longitudinal veins to apical areas, and sometimes these areas possess pale fuscous longitudinal linear suffusions.

Length excl. tegm., ♂ 30 to 34; exp. tegm. 80 to 95 millim.

Hab. Sikhim (*Paris Mus.*).—Malay Peninsula. Sumatra. Java. Borneo.

a². *Opercula convex, about as long as broad, well separated, their inner and outer margins moderately convex, apices rounded.*

1606. **Pomponia intermedia**, *Dist. A. M. N. H.* (7) xiv, p. 68 (1905).

Allied to *P. imperatoria*, Westw. (a Malayan species), in colour and markings, but differing by the length of the third apical area

to the tegmina, which is shorter than the fourth, while those areas are about equal in length in Westwood's species; the greatest width of the tegmina is scarcely more than a third of their length; opercula ochraceous, narrowly margined with black and obliquely black at base, in shape and length resembling those of

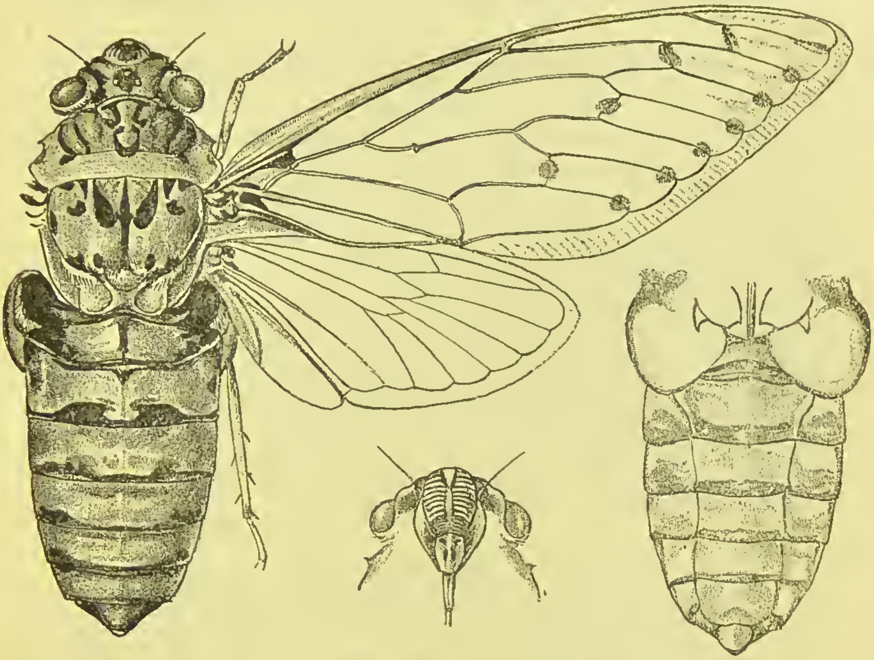


Fig. 49.—*Pomponia intermedia.*

P. imperatoria. Allied to *P. merula*, Dist. (from Borneo), by the relative breadth and length of tegmina, and by having the third apical area to the same shorter than the fourth, but differing by the shape and length of the opercula.

Length excl. tegm., ♂, 64; exp. tegm. 176 millim.

Hab. Tenasserim, Thaungyin Valley (*Bingham, Brit. Mus.*).

The structural differences of the three species are expressed in the following synopsis:—

A. Opercula about as long as broad.
  a. Greatest width of tegmina much more than a third of their length.
    b. Third apical area to tegmina about as long as fourth .... *P. imperatoria.*
  aa. Greatest width of tegmina about or little more than a third of their length.
    bb. Third apical area to tegmina shorter than fourth .... *P. intermedia.*
B. Opercula broader than long .... *P. merula.*

B. *Tegmina almost immaculate, only bases of second and third apical areas infuscate.*

b. *Opercula very small, inwardly and outwardly oblique, their apices broadly convex.*

1607. **Pomponia solitaria,** *Dist. A. M. N. H.* (6) i, p. 295 (1888); *id. Mon. Orient. Cicad.* p. 74, t. vii, f. 17, *a*, *b* (1891).

Body above ochraceous; head with two linear spots at apex and two small spots at base of front, area of the ocelli, a curved line before each eye, and two transverse spots on lateral areas of vertex black; pronotum with two central lines united at base, and a curved lateral marginal line, black; mesonotum with a central longitudinal line, on each side of which is a much shorter oblique line, followed by a small anterior spot, a sublateral line, and two small spots in front of cruciform elevation, black; abdomen above with the segmental margins shortly palely pilose; body beneath and legs pale ochraceous; centre of face and apex of abdomen more or less piceous; tegmina and wings hyaline, the first with the costal membrane and venation ochraceous, the transverse veins at bases of second and third apical areas infuscated; wings with venation mostly ochraceous; rostrum reaching apices of posterior coxæ.

Length excl. tegm., ♂, 28; exp. tegm. 75 millim.

Hab. Narkondam Isld. (*Ind. Mus.*).

b′. *Opercula with outer margins strongly oblique, apical margins subtruncate, apices broadly and moderately convex.*

1608. **Pomponia thalia,** *Walk.* (Dundubia) *List Hom.* i, p. 72 (1850); *Stål* (Pomponia), *Berl. ent. Zeit.* x, p. 171 (1866); *Dist. Mon. Orient. Cicad.* p. 75, t. ix, f. 4, *a*, *b* (1891).

Head, pronotum, and mesonotum greenish-ochraceous; head with anterior transverse striæ to front, area of ocelli with a curved linear line on each side, two transverse spots on lateral areas of vertex and inner margins of eyes black; pronotum with two central fasciæ united anteriorly and posteriorly, the incisures and a spot at posterior angles black; mesonotum with a central longitudinal fascia, on each side of which is a short inwardly-curved fascia, a sublateral fascia with its base outwardly curved, and two spots in front of cruciform elevation black; abdomen ochraceous suffused with green, with a central black linear spot on each of the two basal segments, a marginal series of small black spots, and the last two segments more or less broadly margined with black; sternum and legs pale greenish-ochraceous, abdomen beneath pale ochraceous; face with a central longitudinal and transverse basal fascia, a transverse spot between base and eyes, spots to coxæ, subapical spot to femora, bases and apices of tibiæ, and apices of tarsi and rostrum black; tegmina and wings hyaline, venation ochraceous and fuscous; tegmina with an ochraceous

and black spot at inner angle of upper ulnar area, and with the transverse veins at bases of second and third apical areas infuscated.

Length excl. tegm., ♂, 23; exp. tegm. 61 millim.

Hab. Sikhim (*Coll. Dist.*), Mussooree (*Mackinnon*). Darjiling (*Stockholm Mus.*).—Tibet (*Paris Mus.*).

b². *Opercula short, but placed longitudinally, apices broadly convex.*

1609. **Pomponia surya**, *Dist. Tr. E. S.* 1904, p. 671, t. xxx, f. 2, *a, b*.

Head and mesonotum piceous, pronotum ochraceous; head with an apical spot to front, lateral margins of vertex, and the ocelli ochraceous; pronotum with two central longitudinal fasciæ (widened anteriorly and united posteriorly), the incisures, and large spots on posterior margin piceous; lateral margins of mesonotum and the cruciform elevation ochraceous; abdomen brownish-ochraceous, greyishly pilose; body beneath and legs ochraceous, greyishly pilose; tegmina and wings hyaline, venation fuscous; tegmina with transverse veins at bases of second and third apical areas infuscated; rostrum reaching the posterior coxæ.

Length excl. tegm., ♂ 25, ♀ 21; exp. tegm., ♂ & ♀ 65 to 66 millim.

Hab. Mussooree (*Mackinnon*).

Genus AOLA.

Aola, *Dist. A. M. N. H.* (7) xiv, p. 69 (1905).

Type, *A. bindusara*, Dist.

Distribution. Oriental Region.

Head (including eyes) about as wide as base of mesonotum, its length about equal to breadth between eyes; front prominent, its lateral margins more or less continuous with those of vertex; pronotum distinctly shorter than mesonotum, its lateral margins prominently toothed; abdomen short, about as long as space between apex of front and base of cruciform elevation; tympana entirely covered, the flaps broader than long; opercula short, just reaching the first abdominal segment, and not covering the lateral margins of the tympanal flaps; rostrum reaching the posterior coxæ; tegmina and wings hyaline, the first with eight apical areas and the basal cell longer than broad.

a. *Opercula in male with their outer and posterior margins oblique, their inner angles nearly meeting.*

1610. **Aola bindusara**, *Dist.* (Pomponia) *Tr. E. S.* 1881, p. 642; *id. Mon. Orient. Cicad.* p. 76, t. ix, f. 11, *a, b* (1891); *Atkins. J. A. S. Beng.* liii, p. 228 (1885).

Body above pale ochraceous; head with lateral anterior striæ

and two discal spots to front, area of ocelli, and two transverse fasciæ on each lateral area of vertex black; pronotum with two central longitudinal fasciæ united posteriorly (on each side of which is a small curved discal fascia) and the incisures black; mesonotum with a central longitudinal fascia with a shorter and oblique fascia on each side, followed by a short linear spot on

Fig. 50.—*Aola bindusara.*

anterior margin, a somewhat broken submarginal fascia, two rounded spots in front of cruciform elevation, and a smaller spot on each anterior branch of same, black; abdomen somewhat thickly palely pubescent, with a series of discal segmental markings, two spots near lateral margins of fourth and fifth segments, and a lateral segmental series of smaller spots black; body beneath and legs pale ochraceous, discal apical area of abdomen black; tegmina and wings hyaline, the first with the transverse veins at bases of second and third apical areas slightly infuscated.

Length excl. tegm., ♀, 30; exp. tegm. 87 millim.

Hab. Burma; Teinzo (*Fea*), Karen Hills (*Doherty*). Upper Tenasserim (*Coll. Dist.*).

b. *Opercula in male with their outer and posterior margins oblique, their inner angles wide apart.*

1611. **Aola scitula,** *Dist.* (Pomponia) *Ann. Mus. Civ. Gen.* xxvi, p. 456 (1888); *id. Mon. Orient. Cicad.* p. 74, t. vii, f. 19, *a*, *b* (1891).

Head and pronotum ochraceous or olivaceous; head with anterior striæ and basal spot to front, area of ocelli, inner margins of eyes and lateral margins of vertex black; pronotum with two central longitudinal fasciæ united posteriorly (on each of which is a short discal line), the incisures, lateral marginal areas, and edges of posterior margin black; mesonotum with a central longitudinal fascia (on each side of which is a much shorter one, followed by a short linear spot on anterior margin), a broad sublateral fascia, and two rounded spots in front of the cruciform elevation black; abdomen above black, the posterior segmental

margins and a short basal lateral fascia on each side ochraceous; head beneath, sternum, legs, and opercula ochraceous; abdomen beneath brownish-ochraceous, the base narrowing and the apex broadly black; inner area of eyes and striations to face black; tegmina and wings hyaline, the first with costal membrane and basal venation ochraceous, remaining venation fuscous, transverse veins at bases of second and third apical areas infuscated.

Length excl. tegm., ♂, 22; exp. tegm. 65 millim.

Hab. Assam; Margherita (*Doherty*). Burma; Teinzo (*Fea*). Tenasserim; Meetan (*Fea*).

Genus **ONCOTYMPANA.**

Oncotympana, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 710.

Type, *O. pallidiventris*, Stål, from the Philippines.

Distribution. Oriental Region, Malayana (apparently not east of the Philippines), China and Japan.

Head (including eyes) nearly as wide or distinctly narrower than base of mesonotum, its length about or nearly equal to space between eyes; pronotum considerably shorter than mesonotum, its lateral margins a little convex, its posterior angles ampliated; mesonotum large, convex; abdomen in male short, broad, about as long as space between apex of head and base of cruciform elevation; tympanal coverings very globose and projecting beyond the lateral abdominal margins; opercula in male short, transverse, with their disks a little convex; anterior femora spined beneath; rostrum passing the posterior coxæ; tegmina and wings hyaline, the first usually more or less maculate, apical areas eight, venation normal.

A. *Head (including eyes) a little narrower than base of mesonotum.*

a. *Rostrum considerably passing the posterior coxæ.*

b. *Opercula in male pale, unicolorous, inwardly overlapping, broadly and regularly convex posteriorly.*

1612. **Oncotympana obnubila**, *Dist.* (Pomponia) *A. M. N. H.* (6) i, p. 296 (1888); *id. Mon. Orient. Cicad.* p. 81, t. vi, f. 10, *a*, *b* (1891).

Head, pronotum, and mesonotum olivaceous; head with lateral striæ to front, a transverse fascia between eyes (including area of ocelli connected with posterior margin), black; pronotum with a broad black central fascia, widened anteriorly and posteriorly, containing a central longitudinal broken ochraceous line, and margined with pale olivaceous, the incisures, extreme lateral margins, and a spot on posterior lateral margins black; mesonotum much suffused with black, as shown in figure; abdomen black, the tympanal coverings olivaceous, with their posterior and inner margins black; body beneath much shaded with black and finely greyishly pilose; opercula in male greyishly olivaceous; tegmina

and wings hyaline, the venation fuscous; tegmina with the transverse veins at bases of second, third, fifth, seventh, and eighth

Fig. 51.—*Oncotympana obnubila.*

apical areas infuscated, and a marginal series of fuscous spots a apices of longitudinal veins to apical areas.

Length excl. tegm., ♂, 30; exp. tegm. 110 millim.

Hab. Simla (*Ind. Mus.*). Tehri-Garwhal (*Mackinnon*).

"In moss on oak-trees" (*Mackinnon*).

B. *Head (including eyes) about as wide as base of mesonotum.*

a′. *Rostrum considerably passing the posterior coxæ.*

b′. *Opercula black, unicolorous, inwardly overlapping, broadly and regularly convex posteriorly.*

1613. **Oncotympana expansa**, *Walk.* (Carineta) *Ins. Saund., Hom.* p. 26 (1858); *Stål* (Pomponia), *Berl. ent. Zeit.* x, p. 171 (1866); *Atkins. J. A. S. Beng.* lv, p. 176 (1886); *Dist. Mon. Orient. Cicad.* p. 79, t. v, f. 13, *a*, *b* (1891).

Head, pronotum, and mesonotum greenish-ochraceous; head with lateral striæ to front, area of ocelli, an oblique broken fascia between ocelli and outer margin of vertex, and a spot at inner margins of eyes black; pronotum with two central angulated longitudinal fasciæ united posteriorly, on each side of which is a short curved discal spot, the incisures and a spot on lateral margins black; mesonotum with two black-margined central obconical spots, their bases black, on each side of which is a small anterior spot, a broad curved and broken sublateral fascia, a large angulated spot in front of cruciform elevation, which has two small discal spots and its anterior angles black; abdomen greenish-ochraceous, much shaded with black, the apical third and the tympanal coverings almost wholly black; head beneath, sternum, and legs greenish-ochraceous, the opercula and abdomen black; abdomen with a marginal ochraceous fascia near apices of opercula; trans-

verse striæ to face, a line between face and eyes, inner margins of eyes, outer margins of prosternum, a central line to rostrum and its apex, spots to coxæ and trochanters, linear streaks to femora, and the apices of tibiæ black; tegmina and wings hyaline, venation alternately ochraceous and fuscous; tegmina with the transverse veins at bases of second, third, fifth, and seventh apical areas infuscated, and a marginal series of small fuscous spots near apices of longitudinal veins to apical areas.

Length excl. tegm., ♂, 26; exp. tegm. 88 millim.

Hab. Sikhim (*Ind. Mus.*). Eastern Himalayas (*Coll. Dist.*).

a². *Rostrum reaching third abdominal segment.*

b². *Opercula piceous, not quite meeting inwardly, posterior and lateral margins convex.*

1614. **Oncotympana melanoptera**, *Dist.* (Pomponia) *Tr. E. S.* 1904, p. 672, pl. xxx, f. 3, *a, b.*

Head, pronotum, and mesonotum olivaceous-green; head with the anterior margin and a basal triangular spot to front, some reticulate lateral markings to vertex, and the area of ocelli black; pronotum with the basal and lateral margins dull ochraceous, with two central longitudinal waved black fasciæ, widened on anterior margin and united posteriorly, on each side of these are two oblique purplish spots and some black marks on the lateral areas; mesonotum with two sets of central obconical spots arranged in pairs, a longer obconical spot on each side, four anterior marginal spots, and a central lateral and apical spot black; cruciform elevation with its apical angles black; abdomen black, a few obscure ochraceous spots above, and in the male with the anterior margin of the second abdominal segment and a spot on each side of anal segment white; sternum, rostrum, and legs olivaceous; transverse marginal striæ to face black; opercula piceous; tegmina and wings hyaline, the first with the costal membrane and basal venation olivaceous, remaining venation fuscous, transverse veins at bases of second, third, fifth, and seventh apical areas infuscated, and a submarginal series of small fuscous spots near apices of longitudinal veins to apical areas.

Length excl. tegm., ♂ & ♀, 20; exp. tegm. 68 to 70 millim.

Hab. Mussooree (*Mackinnon*).

Genus **MATA**, nov.

Type, *M. kama*, Dist.

Distribution. British India. Java.

Head (including eyes) about as wide as base of mesonotum, distinctly shorter than space between eyes; pronotum shorter than mesonotum, its lateral margins a little convex, sinuate before the posterior lateral angles, which are moderately lobately produced; abdomen in male short, about as long as space between

apex of head and base of cruciform elevation; tympanal orifices completely covered, tympanal coverings with their outer margins sinuate, the posterior angles only projecting beyond the lateral margins of the abdomen; metasternum prolonged in a broad, oblong, laminate process between the opercula, which are short, transverse, and not extending beyond the base of abdomen, their lateral margins visible from above; rostrum reaching the posterior coxæ; anterior femora spined beneath; tegmina and wings hyaline, maculate; tegmina very long and narrow, more than three times longer than broad, with eight apical areas and the basal cell longer than broad; wings with six apical areas.

1615. **Mata kama**, *Dist.* (Pomponia) *Tr. E. S.* 1881, p. 643; *id. Mon Orient. Cicad.* p. 78, t. vi, f. 12, *a, b,* (1891).

Head, pronotum, and mesonotum greenish; head with the lateral margins of front, area of ocelli (from which two lines proceed to posterior margin of vertex), and two transverse lines on its lateral margins black; pronotum with two central longitudinal much-angulated fasciæ, between which the colour is ochraceous, followed on each side by a short discal curved line, and some of the incisures black, an oblique fuscous spot on lateral margins, posterior margin narrowly edged with black; mesonotum with two black-margined obconical spots, a central lanceolate spot, and a linear

Fig. 52.—*Mata kama.*

angulate fascia in front of each anterior angle of cruciform elevation black; abdomen castaneous; tympanal coverings pale green, fuscous anteriorly, and cretaceous white near lateral margins; body beneath with the head, sternum, and opercula more or less greenish, abdomen castaneous; central area to face and apex of rostrum black; tegmina and wings hyaline, venation fuscous; tegmina with the transverse veins at bases of second, third, fifth, and seventh apical areas infuscated, and a marginal series of fuscous spots at apices of longitudinal veins to apical areas.

Length excl. tegm., ♂, 18; exp. tegm. 66 millim.

Hab. Darjiling (*Coll. Dist.*). Mungphu (*Coll Atkinson*).—Java.

Division *LAHUGADARIA.*

Lahugadaria, *Dist. A. M. N. H.* (7) xv, p. 304 (1905).

In this division the lateral margins of the pronotum are not dentate; the tympana are completely covered, the tympanal flaps

broader than long; the opercula in the male are short, somewhat globose, wider than abdominal margins, and distinctly visible from above; metanotum strongly exposed behind the cruciform elevation, and angularly excavated to receive the apex of the basal abdominal segment.

At present I can only include the following genus.

Genus **LAHUGADA.**

Lahugada, *Dist. A. M. N. H.* (7) xv, p. 304 (1905).

Type, *L. dohertyi*, Dist.

Distribution. At present known only from Assam.

Head (including eyes) considerably narrower than base of mesonotum, its length about equal to space between eyes, its lateral margins discontinuous, the lateral margins of front being almost at right angles to those of vertex; pronotum almost as long as mesonotum, narrowed anteriorly, the posterior angles prominent and rounded; metanotum strongly exposed behind the cruciform elevation, angularly excavated to receive the apex of the basal abdominal segment; abdomen considerably longer than space between apex of front and base of cruciform elevation; tympana completely covered, tympanal coverings broader than long and transversely rugulose; opercula short, somewhat globose, wider than abdominal margins, and distinctly visible from above; rostrum about reaching the posterior coxæ; tegmina and wings hyaline, the first with eight apical areas and the basal cell longer than broad.

1616. **Lahugada dohertyi,** *Dist.* (Pomponia) *Mon. Orient. Cicad* p. 77, t. xiii, f. 9, *a*, *b* (1891).

Head, pronotum, and mesonotum dark ochraceous; abdomen pale castaneous; head with the eyes fuscous, the area of the ocelli

Fig. 53.—*Lahugada dohertyi.*

and lateral margins of vertex infuscated; pronotum with a subobsolete central fascia, with a dark spot at base and apex, a short discal fuscous streak on each side, the incisures and outer

margins also infuscated; mesonotum with two small central obconical spots, some subobsolete fasciæ on each side, and with two small blackish spots in front of the cruciform elevation, the centre of which is dark fuscous; body beneath and legs dark ochraceous; apex of rostrum and tarsal claws fuscous; apical area of abdomen castaneous; tegmina and wings hyaline, with a slight bronzy tinge and unspotted, the venation dark ochraceous.

Length excl. tegm., ♂, 27; exp. tegm. 75 millim.

Hab. Assam; Margherita (*Doherty*).

Subfamily II. GÆANINÆ.

Gæaninæ, *Dist. A. M. N. H.* (7) xv, p. 304 (1905); *id. ante*, p. 57.

This subfamily includes a number of genera in which the tympanal orifices are more or less exposed, the tympanal coverings being always present, but in a more or less incomplete condition.

Division *CICADATRARIA.*

Cicadatraria, *Dist. A. M. N. H.* (7) xv, p. 304 (1905).

In this division the tympanal coverings are rounded anteriorly, not angulate, and either completely covering the orifices anteriorly and exposing them interiorly or the reverse, or smaller, exposing them both anteriorly and interiorly; the lateral margins of the pronotum are not convexly ampliate nor medially angulate; the tegmina and wings are hyaline, sometimes maculate.

The genera composing this division are confined to the Eastern Hemisphere.

Synopsis of Genera.

1. Abdomen in ♂ not tuberculate beneath.
  A. Tympanal coverings narrower, but scarcely shorter than tympanal cavities.
    a. Head about as long as pronotum; lateral margins of pronotum straight, not ampliate . . . . EMATHIA, p. 123.
  B. Tympanal coverings both narrower and shorter than tympanal cavities.
    a. Wings with five apical areas . . . . RUSTIA, p. 124.
    b. Wings with six apical areas.
      a. Opercula in ♂ short and transverse, not or scarcely extending beyond base of abdomen.
        a'. Head more or less deflected anteriorly, front not prominent.
          *a*². Pronotum distinctly shorter than mesonotum.
            b'. Length of head about equal to breadth between eyes; abdomen in ♂ longer than space between apex of head and base of cruciform elevation.

c. Greatest width of tegmina only one-third of length, broader than wings........ TERPNOSIA, p. 126.
d. Greatest width of tegmina considerably more than one-third of length, but scarcely broader than wings........ SENA, p. 134.
b^2. Length of head less than width between eyes; abdomen in ♂ about as long as space between apex of head and base of cruciform elevation .... CICADATRA, p. 132.
b. Opercula in ♂ short but well developed, at least reaching apex of second or base of third abdominal segment .... KHIMBYA, p. 139.
bb. Opercula in ♂ extending beyond the middle of abdomen.
aa'. Head not deflected anteriorly, the front very prominent.
aa^2. Pronotum as long as mesonotum. LETHAMA, p. 142.
C. Tympanal coverings shorter, but not narrower than tympanal cavities; head with the front prominent, its lateral margins at right angles with anterior margins of vertex.... BASA, p. 143.
2. Abdomen in ♂ tuberculate beneath on the second and third abdominal segments.
a. Head about as long as half the width between eyes; wings with six apical areas .... CALCAGNINUS, p. 137.
b. Head as long as width between eyes; wings with five apical areas .... GUDABA, p. 138.

Genus **EMATHIA**.

Emathia, *Stål, Hem. Afr.* iv, p. 8 (1866); *Dist. Mon. Orient. Cicad.* p. 133 (1892).

Type, *E. ægrota*, Stål.
Distribution. India.

Head about as long as pronotum, including eyes about as wide as base of mesonotum, vertex longer than front, its lateral margins discontinuous, that of vertex not in line with that of front; pronotum a little shorter than mesonotum, its lateral margins straight, not ampliate, its posterior angles moderately ampliated; mesonotum with the disk convex; abdomen short, about as long as space between apex of head and base of cruciform elevation; tympanal coverings incomplete, narrower but scarcely shorter than the the tympanal cavities, which are thus inwardly exposed; rostrum almost reaching the posterior coxæ; opercula in male small, narrow, not extending beyond basal abdominal segment; anterior femora strongly spined beneath; tegmina and wings hyaline, the first with eight apical areas and the basal cell not twice as long as broad.

1617. Emathia ægrota, *Stål, Berl. ent. Zeit.* 1866, p. 172; *Atkins. J. A. S. Beng.* liii, p. 229 (1885); *Dist. Mon. Orient. Cicad.* p. 133, t. xii, f. 3, *a, b* (1892).
Tibicen aurengzebe, *Dist. Tr. E. S.* 1881, p. 646; *Atkins. J A. S. Beng.* liii. p. 231 (1884).

Fig. 54.—*Emathia ægrota.*

Body above dull dark ochraceous; head with narrow marginal striæ to front and the margins of ocelli black; pronotum with a central longitudinal sulcation, on each side of which is a small fuscous spot at anterior margin, and behind which is a fuscous spot on posterior margin, the incisures also fuscous; mesonotum with two short central obconical spots, a long sublateral and somewhat broken fascia on each side, and two small spots in front of cruciform elevation piceous; abdomen with the posterior segmental margins narrowly and obscurely paler; body beneath and legs concolorous with upper surface; centre of face, metasternum, disk and apex of abdomen, streaks to femora, bases and apices of tibiæ, and apical joints of tarsi fuscous; tegmina and wings hyaline; tegmina with costal membrane and basal half of venation ochraceous, remaining venation fuscous, transverse veins at bases of second and third apical areas apical transverse vein to radial area, and apical vein to lower ulnar area more or less infuscated, and usually a small subapical fuscous spot; wings with the transverse vein at base of upper apical area and the margins of abdominal area infuscated.

Length excl. tegm., ♂, 18; exp. tegm. 48 millim.

Hab. Bombay (*Dixon*), Khandala (*Coll. Dist.*).

Genus RUSTIA.

Rustia, *Stål, Hem. Afr.* iv, p. 8 (1866); *Dist. Mon. Orient. Cicad.* p. 125 (1892).

Type, *R. dentivitta*, Walk.

Distribution. Oriental Region.

Head a little shorter than pronotum, including eyes about as wide as base of mesonotum, its lateral margins discontinuous, lateral margins of vertex not in line with those of front, the vertical angles globosely produced, eyes somewhat pedunculate, ocelli much farther apart from eyes than from each other; pronotum as long as mesonotum, its lateral margins nearly straight, a little sinuate, its posterior angles slightly recurved; abdomen longer than space between apex of head and base of cruciform elevation; tympanal coverings very small, both narrower and shorter than the tympanal cavities; opercula in male very small, not covering the cavities; rostrum reaching the posterior coxæ; anterior femora

spined beneath; tegmina and wings hyaline; tegmina with the basal cell much longer than broad, apical areas eight, wings with five apical areas.

a. *Rostrum reaching the posterior coxæ.*

1618. **Rustia dentivitta,** *Walk.* (Cicada) *Journ. Ent.* i, p. 304 (1862); *Dist. Mon. Orient. Cicad.* p. 125, t. viii, f. 14, *a*, *b* (1892).
Rustia pedunculata, *Stål, Berl. ent. Zeit.* p. 383 (1866).
Var. amussitata.
Tibicen amussitatus, *Dist. A. M. N. H.* (6) i, p. 373 (1888); *id.* (Rustia) *Mon. Orient. Cicad.* p. 126, t. xii, f. 16, *a*, *b* (1892).

Fig. 55.—*Rustia dentivitta.*

Body and legs brownish-ochraceous; head with a fascia on each side of front, two central longitudinal spots to vertex, a spot at inner margins of eyes, and the anterior angles of vertex black; pronotum with two central longitudinal fasciæ (on each side of which is an oblique fascia) and the sublateral margin black; mesonotum with two centrally united obconical spots and a curved fascia on each lateral area black; abdomen with a faint central longitudinal fascia, and the apex above and beneath, more or less blackish; tegmina and wings hyaline; tegmina with the venation, costal membrane, and a series of large marginal spots (sometimes united) on the longitudinal veins to apical areas fuscous.

Var. *amussitata.* Tegmina almost unspotted, or with only faint traces of the marginal spots; sometimes with a single apical spot.

Length excl. tegm., ♂ & ♀, 12 to 14; exp. tegm. 32 to 40 millim.

Hab. Mussooree (*Mackinnon*). Assam; Margherita (*Doherty*). Burma; Rangoon (*Coll. Dist.*).—Siam. Cambodia.

b. *Rostrum just passing the intermediate coxæ.*

1619. **Rustia tigrina,** *Dist.* (Tibicen) *A. M. N. H.* (6) ii, p. 325 (1888); *id.* (Rustia) *Mon. Orient. Cicad.* p. 126, t. xiv, f. 19, *a*, *b* (1892).

Ochraceous; a transverse fascia between the eyes, a broad marginal fascia to pro- and mesonota, a spot on each side of cruciform elevation, and two longitudinal dorsal fasciæ to abdomen dark castaneous or piceous; body beneath and legs ochraceous; apex of abdomen spotted with black; tegmina and wings hyaline, the first with the costal membrane and basal venation ochraceous, remaining venation and an apical spot fuscous; wings with the venation fuscous.

Length excl. tegm., ♂, 13; exp. tegm. 31 millim.

Hab. Kulluur (*Coll. Atkinson*).

Genus TERPNOSIA.

Terpnosia, *Dist. A. M. N. H.* (6) ix, p. 325 (note) (1892); *id. Mon. Orient. Cicad.* p. 138 (1892).

Type, *T. psecas*, Walk.

Distribution. Oriental and Malayan Regions, China and Japan.

Head about as long as breadth between eyes, deflected anteriorly, front not prominent; pronotum distinctly shorter than mesonotum, its lateral margins sinuate, with the posterior angles moderately lobately produced; abdomen in male longer than space between apex of head and base of cruciform elevation; tympanal coverings both narrower and shorter than tympanal cavities; opercula in male short and transverse, usually not or scarcely extending beyond base of abdomen*; anterior femora spined beneath; tegmina and wings hyaline, the first usually more or less maculate, with eight apical areas, and the basal cell longer than broad; wings with six apical areas.

A. *Opercula in male not extending beyond base of abdomen.*

a. *Tegmina more or less maculate and with marginal spots.*

α. *Tympanal coverings more than half as long as tympanal orifices; opercula in male with their posterior margins moderately convex.*

1620. **Terpnosia psecas**, *Walk.* (Dundubia) *List Hom.* i, p. 65 (1850).
Pomponia elegans, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 130 (1891).

Head, pronotum, and mesonotum brownish-olivaceous; head

Fig. 56.—*Terpnosia psecas.*

with the front, area of ocelli, from which a fascia converges to lateral margins of vertex, dark castaneous; pronotum with two

* Except in *T. maculipes* and *T. ganesa.*

central longitudinal black fasciæ broadly dilated posteriorly, on each side of these fasciæ and on the lateral and posterior margins the colour is considerably paler, and the last is marked with three black spots; mesonotum with a central lanceolate fascia, on each side of which is an obconical spot, other discal markings, and the lateral margins black; abdomen above dark castaneous; tympanal coverings and large irregular segmental spots on each side greyish-green; head, sternum, and legs greyish-green mottled with dark castaneous; opercula greyish-green with their extreme margins black; abdomen beneath shining greyish-green, the segmental margins dark castaneous; tegmina and wings hyaline, the first with a slight bronzy tint, the venation somewhat alternately fuscous or ochraceous, costal membrane brown, basal cell ochraceous, transverse veins at bases of first to fifth and seventh and eighth apical areas broadly infuscated, and a marginal series of fuscous spots at apices of longitudinal veins to apical areas.

Length excl. tegm., ♂, 35; exp. tegm. 88 millim.

Hab. Ceylon (*Green*).—Java (*Brit. Mus.*).

a'. Tympanal coverings less than half the length of tympanal orifices; opercula in male with their lateral and posterior margins more or less oblique.

1621. **Terpnosia stipata**, *Walk.* (Dundubia) *List Hom.* i, p. 51 (1850); *Dist.* (Terpnosia) *Mon. Orient. Cicad.* p. 139, t. xv, f. 6, *a, b* (1892).
Dundubia clonia, *Walk. List Hom.* i, p. 66 (1850).

Body above greenish-ochraceous; head with the margins of front and apical angles of vertex fuscous, area of ocelli, an oblique fascia on each side, and an small spot at inner margins of eyes black or piceous; pronotum with two central fasciæ united posteriorly, the incisures, a spot on lateral margins, extreme edge of posterior margin, and a spot on each side of same black; mesonotum with a central linear fascia, on each side of which is a much shorter one, followed by a small obconical spot, a sinuated sublateral fascia, two small spots in front of cruciform elevation, and the angles of same black; abdomen with the posterior segmental margins, a broad central dorsal fascia, and macular lateral fasciæ very dark fuscous, extreme apex greyish-white; body beneath and legs pale greenish, the abdomen beneath talc-like and semitransparent; a few sternal spots, the anterior femoral spines, and the tarsi more or less fuscous; tegmina and wings hyaline, the venation fuscous or ochraceous; tegmina with the costal membrane ochraceous, the transverse veins at bases of second, third, and fifth apical areas moderately infuscated, and a marginal series of small fuscous spots situate on the longitudinal veins to apical areas.

Length excl. tegm., ♂ 33, ♀ 22; exp. tegm., ♂ 80, ♀ 70 millim.

Hab. Ceylon; Ritagala (*Green*).

a[2]. *Tympanal coverings very small and rudimentary; opercula in male with their anterior and posterior margins convexly rounded.*

1622. **Terpnosia confusa,** *Dist. A. M. N. H.* (7) xv, p. 306 (1905).

Body above castaneous-brown, finely greyish pilose; pronotum with the centre of the posterior margin (excluding a medial spot), the apices of the lateral margins, and two central curved fasciæ pale greenish; mesonotum with the anterior lateral margins pale greenish, the margins of two obscure anterior obconical spots and the anterior angles of the cruciform elevation ochraceous; posterior margins of the abdominal segments narrowly fuscous; body beneath considerably paler in hue than above; opercula broad, transverse, convexly rounded posteriorly, not quite reaching basal of abdomen; rostrum just reaching basal abdominal segment. Tegmina and wings hyaline, the veins brown or brownish-ochraceous; tegmina with a slight greenish suffusion, a curved series of about four small fuscous spots extending from base of second ulnar area to inner margin, the bases of the two upper apical areas a little infuscated, and a narrow elongate fuscous spot at apices of the longitudinal veins to apical areas. Tympanal covering very small, the greater part of the tympana being exposed.

Length excl. tegm., ♂, 35; exp. tegm. 87 millim.

Hab. "India" (*Brit. Mus.*); Sikhim (*Coll. Dist.*).

This is the species figured in my Mon. Orient. Cicad. (tab. vii, f. 21) as *T. psecas*, Walk.

a[3]. *Tympanal coverings more than half as long as tympanal orifices; opercula in male with their lateral and posterior margins oblique; marginal spots to tegmina sometimes absent.*

1623. **Terpnosia ransonetti,** *Dist.* (Pomponia) *A. M. N. H.* (6) i, p. 372 (1888); *id. Mon. Orient. Cicad.* p. 72, t. vii, f. 20, *a*, *b* (1890).
Pomponia greeni, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 129, t. v, f. 11 (1891).

Head and thorax above ochraceous; head with two converging lines to front, the anterior area of vertex (enclosing ocelli), the hinder margins of eyes, and a small spot at that region black; pronotum with two central longitudinal lines united anteriorly and posteriorly (on each side of which is a curved discal spot) and the incisures black; mesonotum with a central longitudinal fascia widened at base into a large crescentic spot in front of basal cruciform elevation, on each side of this at anterior margin is a short curved fascia, followed by a marginal spot, a broad sublateral fascia, and an oblique spot on each lateral margin, black; abdomen above brownish-ochraceous and pilose, the segmental margins narrowly piceous; head beneath, sternum, and legs ochraceous; an oval fascia on face, a transverse spot between face and eyes, posterior margin of head, a transverse spot on mesosternum, apices

of femora and bases of tibiæ black; abdomen beneath brownish-ochraceous, its base and apex piceous; tegmina and wings hyaline, with a pale creamy-blue tint, venation castaneous or fuscous; tegmina with a small ochraceous spot at base of upper ulnar area, transverse veins at bases of second, third, fifth, and seventh apical areas infuscated, and a marginal series of small fuscous spots at apices of longitudinal veins to apical areas.

Length excl. tegm., ♂, 22; exp. tegm. 59 millim.

Hab. Mussooree (*Mackinnon*). Ceylon (*Green*); Colombo (*Ind. Mus.*).

In some varieties of this species the marginal tegminal spots are absent.

b. *Tegmina without marginal spots.*

b. Tympanal coverings not more than a third of the length of tympanal orifices; opercula in male with their outer margins convexly oblique, posterior margins obliquely truncate.

1624. **Terpnosia clio**, *Walk.* (Dundubia) *List Hom.* i, p. 73 (1850); *Dist.* (Terpnosia) *Mon. Orient. Cicad.* p. 141, t. ix, f. 5, *a, b* (1892).

Head and thorax above greenish-ochraceous; head with two central apical spots to front, a spot at anterior angles of vertex, and the area of the ocelli black; pronotum with two central linear fasciæ, almost united posteriorly, and the incisures black; mesonotum with a central longitudinal lanceolate fascia, with a short curved fascia on each side, a broken sublateral fascia, and two small spots in front of cruciform elevation black; abdomen ochraceous, the segmental margins green, lateral margins pale ochraceous, anterior margins of the short tympanal flaps black; legs, sternum, and opercula greenish-ochraceous; striations to face, a spot between face and eyes, basal and apical annulations to anterior and intermediate femora and tibiæ, apices of tarsi, apex of rostrum, and basal fascia to the opercula dark castaneous or piceous; abdomen beneath pale ochraceous, its base, apical segment, and anal appendage black; tegmina and wings hyaline, the venation ochraceous or fuscous; tegmina with the costal membrane greenish, transverse veins at bases of second, third, and fifth apical areas infuscated, a black spot at basal angle of upper ulnar area.

Length excl. tegm., ♂, 19; exp. tegm. 50 millim.

Hab. Sikhim (*Coll. Dist.*). Mussooree (*Mackinnon*). Burma; Karennee (*Fea*). Tenasserim; M. Mooleyit (*Fea*).

b'. Tympanal coverings not more than a third of the length of tympanal orifices; opercula in male with their margins obliquely rounded.

1625. **Terpnosia abdullah**, *Dist. Tr. E. S.* 1904, p. 676, pl. xxx, f. 7, *a, b*.

Body pale ochraceous, with the following black markings, viz. two small anterior spots and a spot at each basal angle to front, the area of the ocelli, and a line at inner margins of eyes; two central longitudinal lines and the incisures to pronotum; a central line (much widened medially), on each side of this an anterior curved line, followed by two angulated spots and a large lateral curved spot to mesonotum, and a small rounded spot in front of anterior angles of the basal cruciform elevation; lateral margins of first and an oblique marginal spot to second abdominal segment, transverse spots to face, apices of femora, bi-annulations to tibiæ and tarsi, and base and apex of abdomen beneath. Tegmina and wings pale hyaline, the venation ochraceous; the first with a black spot at base of upper ulnar area, and the transverse veins at the bases of the two upper apical areas, infuscated; opercula small and obliquely rounded; rostrum reaching the posterior coxæ.

Length excl. tegm., ♂, 16; exp. tegm. 46 millim.

Hab. N.W. India and Sikhim (*Brit. Mus.*).—Malay Peninsula; Pahang (*Craddock*).

c. *Tegmina completely unspotted.*

c. *Tympanal coverings very small and rudimentary; opercula in male narrow and oblique.*

1626. **Terpnosia madhava,** *Dist.* (Pomponia) *Tr. E. S.* 1881, p. 644; *Atkins. J. A. S. Beng.* liii, p. 229 (1885); *Dist.* (Terpnosia) *Mon. Orient. Cicad.* p. 141, t. ix, f. 2, *a, b* (1892).

Body above pale greenish; abdomen on each side with a lateral series of three large oblong spots only denoted by their darker green margins, and placed on the second, third, and fourth segments, segmental margins narrowly dark greenish, abdominal apex greyishly tomentose; mesonotum with two faint obconical spots; ocelli red; eyes fuscous; body beneath pale green; legs and rostrum pale ochraceous; tegmina and wings hyaline, the venation ochraceous or greenish-ochraceous; tegmina with the costal membrane pale greenish.

Length excl. tegm., ♂, 22; exp. tegm. 55 millim.

Hab. Assam (*Coll. Dist.*).

c'. *Tympanal coverings very small and rudimentary; opercula in male transverse, their posterior margins subtruncate.*

1627. **Terpnosia collina,** *Dist.* (Pomponia) *A. M. N. H.* (6) i, p. 371 (1888); *id.* (Terpnosia) *Mon. Orient. Cicad.* p. 142, t. vii, f. 12, *a, b* (1892).

Body above brownish-ochraceous; head with the margins of front and the vertex much suffused with black; pronotum with two central longitudinal fasciæ, on each side of which is a curved linear spot, and the incisures black; mesonotum with a central longitudinal fascia widened anteriorly and posteriorly, on each

side of this a short curved fascia, a sublateral fascia, and two small spots in front of cruciform elevation black; abdomen with the segmental margins somewhat broadly black; sternum, opercula, and legs ochraceous; abdomen beneath brownish-ochraceous; head (excluding face) blackish; bases of tibiæ, the tarsi, and basal segment of abdomen fuscous; apical abdominal segment somewhat infuscated; tegmina and wings hyaline, venation fuscous or ochraceous, the first with the costal membrane ochraceous.

Length excl. tegm., ♂, 16 to 17; exp. tegm. 47 to 54 millim.

Hab. Assam; Khási Hills (*Ind. Mus.*). Burma; Ruby Mines (*Doherty*).

B. *Opercula in male extending beyond base of abdomen, their inner margins oblique, apices rounded and situate on lateral abdominal margins.*

1628. **Terpnosia maculipes**, *Walk.* (Dundubia) *List Hom.* i, p. 70 (1850); *Atkins. J. A. S. Beng.* liii, p. 224 (1865); *Dist.* (Terpnosia) *Mon. Orient. Cicad.* p. 140, t. xv, f. 7, *a*, *b* (1892).

Body above dull ochraceous; head with marginal lines to front, linear spots at anterior angles of vertex, area of ocelli, and a small spot between ocelli and eyes black; pronotum with two central linear fasciæ (united posteriorly) and the incisures black; mesonotum with a central longitudinal fascia, on each side of which is a short curved fascia, followed by a small anterior marginal spot, a broken macular sublateral fascia, and two spots in front of cruciform elevation black; abdomen pilose, with the small tympanal coverings, narrow segmental margins, and lateral segmental marginal spots black; body beneath and legs ochraceous; coxal spots, spots near bases and apices of femora, spines to anterior femora, subbasal and subapical annulations to anterior and intermediate tibiæ, apices of tarsi, apex of rostrum, and striations to face dark castaneous or fuscous; tegmina and wings hyaline, the venation fuscous or ochraceous; tegmina with the costal membrane ochraceous, the transverse veins at bases of second, third, fifth, and seventh apical areas palely infuscated, a series of small fuscous marginal spots near apices of longitudinal veins to apical arear, and a fuscous spot at basal angle of upper ulnar area.

Length excl. tegm., ♂, 28; exp. tegm. 77 millim.

Hab. North Bengal (*Miss Campbell, Brit. Mus.*). Mussooree (*Mackinnon*).

1629. **Terpnosia ganesa**, *Dist. Tr. E. S.* 1904, p. 675, pl. xxx, f. 6, *a*, *b*.

Body above brownish-olivaceous; head with margins of front and area of ocelli, on each side of which is an oblique line, black; pronotum with two central longitudinal fasciæ, with a spot on each side of same, and the incisures black; mesonotum with two

anterior obconical spots, a straight longitudinal fascia continued from between them, a spot at each anterior angle of the basal cruciform elevation, and a broad continuous sublateral fascia preceded by a small spot on anterior margin black; abdomen above irregularly greyishly pilose, the extreme margins of the first and second segments, a central longitudinal spot on first segment, broad discal fascia to third segment, two small central spots on fourth, fifth, and sixth segments, and lateral marginal spots black; body beneath and legs ochraceous, central fascia to face and the rostrum stramineous; apical spots to coxæ, and basal and apical annulations to femora and tibiæ, black; tegmina and wings hyaline, venation fuscous or ochraceous, the tegmina spotted at apices of ulnar and apical areas; rostrum passing the posterior coxæ; opercula oblique, not reaching apex of second abdominal segment and not meeting inwardly.

Length excl. tegm., ♂, 26; exp. tegm. 70 millim.

Hab. Mussooree (*Mackinnon*).

This species is allied to *T. maculipes*, from which it differs by the shorter, broader, and more darkly marked abdomen.

Genus CICADATRA.

Cicadatra, *Amyot, Ann. Soc. Ent. Fr.* 1847, p. 153 [349], f. 62; *Fieb. Rev. Mag. Zool.* (3) iv, p. 42 (1876); *Dist. Mon. Orient. Cicad.* p. 133 (1892).

Cicada, subgen. Cicadatra, *Kolenat. Melet. Entomol.* p. 9 (1857).

Tettigia, subgen. Cicadatra, *Stål, Ann. Soc. Ent. Fr.* 1861, p. 617.

Type, *C. atra*, Oliv., a Palæarctic species.

Distribution. Palæarctic, just entering British India.

Head (including eyes) narrower than base of mesonotum, its length less than width between eyes, but about as long as pronotum; pronotum much shorter than mesonotum, its lateral margins more or less obliquely straight, its posterior lateral angles a little ampliated; mesonotum convex; abdomen in male as long as space between apex of head and base of cruciform elevation; tympanal coverings both narrower and shorter than tympanal orifices; opercula in male short and transverse, not extending beyond the base of abdomen; anterior femora spined beneath; tegmina and wings hyaline, the first sometimes a little maculate, its greatest width more than a third of length, apical areas eight; wings with six apical areas.

A. *Tegmina and wings immaculate.*

1630. **Cicadatra sankana**, *Dist.* (Tibicen) *Tr. E. S.* 1904, p. 675, pl. xxx, f. 8, *a*, *b*.

♂. Head black, anterior margins and three small basal spots ochraceous, eyes and ocelli castaneous; pronotum castaneous, lateral and posterior margins and two central spots, both on

anterior and posterior margins (divided by a pale ochraceous line), black; mesonotum and basal cruciform elevation black, the first with lateral margins and two anterior obconical spots only delineated by their margins ochraceous; abdomen castaneous, greyishly pilose,

Fig. 57.—*Cicadatra sankana.*

the base and a central longitudinal fascia black; head beneath, sternum, and legs ochraceous; abdomen beneath castaneous; tegmina and wings hyaline, the venation fuscous or ochraceous, their bases narrowly ochraceous; wings with a small fuscous marginal spot near abdominal area; rostrum scarcely extending beyond the anterior coxæ.

♀. Body much darker in hue than in ♂; lateral margins of abdomen beneath obscurely piceous.

Length excl. tegm., ♂ 18, ♀ 20; exp. tegm., ♂ 47, ♀ 52 millim.

Hab. Chamasari, 5000 ft. (*Mackinnon*).—Baluchistan, Ormarah (*Cumming*, *Brit. Mus.*).

B. *Tegmina more or less maculate.*

a. *Transverse veins at bases of second and third apical areas of tegmina infuscated.*

1631. **Cicadatra xantes**, *Walk.* (Cicada) *List Hom.* i, p. 198 (1850); *Atkins. J. A. S. Beng.* liii, p. 230 (1885); *Stål* (Cicadatra), *Öfv. Vet.-Ak. Förh.* 1862, p. 485; *Dist. Mon. Orient. Cicad.* p. 135, t. xv, f. 1, *a*, *b* (1892).

Cicada subvenosa, *Walk. Ins. Saund., Hom.* p. 18 (1858).

Body above ochraceous, rather thickly and shortly pilose; head with the front castaneous, and with an irregular black spot near the inner margins of eyes; pronotum with two central longitudinal fasciæ, on each side of which is a small spot, and a small central spot on posterior margin black; mesonotum with four obconical black spots, the outer ones longest and sublateral; abdomen very thickly greyishly pilose; body beneath and legs ochraceous; tegmina and wings hyaline and somewhat talc-like in appearance, the venation ochraceous; tegmina with the costal membrane and extreme base ochraceous, the transverse veins at bases of second and third apical areas palely infuscated.

Length excl. tegm., ♂, 17; exp. tegm. 50 millim.

Hab. "North India" (*Warwick*, *Brit. Mus.*). Peshawur (*Watson*). "Ind. orient." (*Coll. Dist.*).

b. *Transverse veins at bases of second and third apical areas of tegmina, and at base of upper apical area to wings, infuscated.*

1632. **Cicadatra striata**, *Walk.* (Cicada) *List Hom.* i, p. 206 (1850); *Stål, Öfv. Vet.-Ak. Förh.* 1862, p. 482; *Dist.* (Cicadatra) *Mon. Orient. Cicad.* p. 135, t. xv, f. 2, *a*, *b* (1892).
Cicada anœa, *Walk. List Hom.* i, p. 207 (1850).

♂. Head blackish, a spot at anterior angles of vertex and a smaller one behind each eye ochraceous; pronotum dull ochraceous with a pale central longitudinal fascia margined with black, the sublateral and subposterior margins and the incisures black; mesonotum ochraceous, with four obconical spots, the outermost of which are longest and sublateral, a large spot in front of cruciform elevation, and a small spot on each side of same black; abdomen above black, the posterior segmental margins broadly castaneous; head beneath blackish; sternum, legs, and opercula ochraceous; coxæ spotted with black; abdomen beneath pale castaneous, its apex ochraceous; tegmina and wings hyaline, with their extreme bases reddish-ochraceous, venation pale brownish or fuscous; tegmina with the transverse veins at the bases of the second and third apical areas infuscated; wings with the transverse vein at base of upper apical area infuscated.

♀. Head totally black; mesonotum nearly black, the spots having coalesced; abdomen above darker than in male.

Length excl. tegm., ♂, 16; exp. tegm. 45 millim.

Hab. Quetta (*Coll. Dist.*). North Bengal (*Miss Campbell, Brit. Mus.*).

Genus SENA.

Sena, *Dist. A. M. N. H.* (7) xv, p. 307 (1905).

Type, *S. quærula*, Pall.

Distribution. Palæarctic and Oriental Regions.

Head about as long as space between eyes, lateral margins of front somewhat at right angles to lateral margins of vertex, eyes scarcely projecting beyond the anterior angles of the pronotum; pronotum shorter than the mesonotum, its lateral margins more or less oblique, the posterior angles being obliquely dilated; abdomen longer than the space between apex of head and base of cruciform elevation*; tympana largely exposed, the flaps being a little shorter and very much narrower than the tympanal orifices; rostrum just passing the intermediate coxæ; opercula in male small, transverse, not extending beyond base of abdomen; anal appendages large.

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* Except in *S. acberi*, Dist.

A. *Abdomen longer than space between apex of head and base of cruciform elevation.*

a. *Tegmina and wings spotted.*

b. *Tegmina and wings hyaline.*

a'. *Rostrum about reaching posterior coxæ.*

1633. **Sena quærula**, *Pall.* (Cicada) *Reise*, tom. ii, p. 729 (1773); *Hagen, Stett. ent. Zeit.* 1856, p. 33; *Fieb.* (Cicadatra) *Rev. Mag. Zool.* (3) iv, p. 48 (1876); *Dist. Mon. Orient. Cicad.* p. 134, t. xii, f. 2, *a*, *b* (1892).
Cephaloxys quadrimacula, *Walk. List Hom.* i, p. 238 (1850); *Atkins.* (Mogannia) *J. A. S. Beng.* liii, p. 233 (1885).
Cicada steveni, *Stål, Öfv. Vet.-Ak. Förh.* 1854, p. 243.
Stoll, Cig. f. 6.

Head and thorax above ochraceous or reddish-ochraceous; head with the front and a large broken transverse fascia between the eyes black; pronotum with two central longitudinal fasciæ, which are irregular in width, the incisures and a submarginal lateral fascia black; mesonotum with four obconical spots (of which the central pair are shortest and sometimes fused), a lanceolate spot (sometimes absent) in front of cruciform elevation, and a spot on

Fig. 58.—*Sena quærula*, var.

each side of same black; abdomen sometimes ochraceous with a discal series of black spots, or altogether black with the posterior segmental margins ochraceous; head beneath, sternum, legs, and opercula ochraceous; the face, sternal spots, shadings to femora, tibiæ, and tarsi (more or less) black; abdomen beneath ochraceous, in some specimens black with the posterior segmental margins ochraceous; tegmina and wings hyaline, somewhat talc-like in appearance, the venation sometimes towards apices ochraceous; tegmina with the costal membrane ochraceous, the transverse veins at bases of first, second, and third apical areas (sometimes only the second and third) very darkly infuscated, a small costal spot at end of radial area and the upper margin of basal cell dark fuscous; wings with the transverse veins at bases of first, second,

and third apical areas (sometimes only first and second) broadly and darkly infuscated; rostrum with its apex black and about reaching posterior coxæ.

Length excl. tegm. 19 to 32; exp. tegm. 50 to 85 millim.

Hab. Quetta (*Brit. Mus.*). "North India" (*Stevens, Brit. Mus.*). —Distributed over a considerable portion of the Palæarctic Region; Turkestan; Tashkend. Persia. Afghanistan.

A large varietal form from Quetta is figured above.

b′. *Tegmina and wings semi-opaque.*

a². *Rostrum just passing intermediate coxæ.*

1634. **Sena rugipennis,** *Walk.* (Cicada) *Ins. Saund., Hom.* p. 17 (1858); *Dist.* (Cicadatra) *Mon. Orient. Cicad.* p. 135, t. xii, f. 7, *a, b* (1892).

Body and legs ochraceous; abdominal segmental margins piceous; tegmina and wings talc-like, semi-hyaline, their extreme bases ochraceous; tegmina with the venation ochraceous, but becoming fuscous on apical area, costal membrane ochraceous, transverse veins at bases of second, third, and fifth apical areas infuscated; wings with the venation ochraceous, transverse veins at bases of first, second, and third apical areas broadly piceous.

Length excl. tegm., ♀, 30; exp. tegm. 90 millim.

Hab. "Hindostan" (*Brit. Mus.*).

Of this very distinct species I have only seen the unique female type in the British Museum.

B. *Abdomen not longer than space between apex of head and base of cruciform elevation.*

b. *Tegmina and wings unspotted, hyaline.*

a³. *Rostrum about reaching intermediate coxæ.*

1635. **Sena acberi,** *Dist.* (Tibicen) *A. M. N. H.* (6) i, p. 373 (1888); *id.* (Cicadatra) *Mon. Orient. Cicad.* p. 136, t. xv, f. 3, *a, b* (1892).

Head black, ocelli red, eyes brownish-ochraceous; pronotum black, with a central longitudinal fascia and the posterior margin yellow, and with two large discal reddish spots; mesonotum black, with two faint yellowish central fasciæ extending a short distance from anterior margin; abdomen black, the lateral areas and apex more or less reddish; face, sternum, and femora yellow; a central longitudinal fascia to face, head beneath (excluding face), apices of femora, the tibiæ and tarsi black; abdomen beneath dull reddish; tegmina and wings hyaline, venation blackish or olivaceous, costal membrane to tegmina olivaceous; rostrum with the apex piceous and about reaching the intermediate coxæ; opercula in male yellow, short, broad, obliquely rounded and not meeting inwardly.

Length excl. tegm., ♂, 25; exp. tegm. 72 millim.

Hab. Kashmir Valley, 6300 feet (*Leech*).

Genus CALCAGNINUS.

Calcagninus, *Dist. Mon. Orient. Cicad.* pp. 31 & 136 (1889 & 1892).

Type, *C. picturatus*, Dist.

Distribution. Oriental Region.

Head (including eyes) about as broad as base of mesonotum, its length about half the width between eyes, ocelli not quite twice the distance from eyes as from each other; pronotum with the lateral margins sometimes slightly ampliated and more or less distinctly toothed, or nearly straight with only the posterior angles ampliated; abdomen longer than space between the apex of head and base of cruciform elevation; tympanal coverings rudimentary, only covering the tympanal orifices at base; second and third ventral segments in male furnished with a well-developed tubercle near each lateral margin; anterior femora distinctly spined beneath; rostrum reaching the posterior coxæ; tegmina and wings hyaline, the first usually slightly maculate and possessing eight apical areas; wings with six apical areas.

a. *Lateral pronotal margins straight, not ampliated.*

1636. **Calcagninus picturatus**, *Dist.* (Leptopsaltria) *A. M. N. H.* (6) i, p. 370 (1888); *id.* (Calcagninus) *Mon. Orient. Cicad.* p. 136, t. viii, f. 13, *a, b* (1892).

Body above brownish-ochraceous; head (excluding base) much suffused with piceous, ocelli red, eyes castaneous; pronotum with a central, longitudinal, fuscous fascia, the margins of which are black, and which is ampliated anteriorly, and with an oblong piceous fascia near each lateral margin; mesonotum with a central, longitudinal, lanceolate fascia, on each side of which is a curved linear discal fascia, a broad sublateral fascia, and two spots in front of cruciform elevation piceous; abdomen sparingly greyishly pilose, with a double discal series and more continuous lateral marginal series of piceous spots, base of anal segment also piceous, anal appendage pale ochraceous; tegmina and wings hyaline, venation fuscous; tegmina with a small ochraceous and fuscous spot at base of upper ulnar area, and the transverse veins at bases of second and third apical areas infuscated *; rostrum with its apex piceous and just passing posterior coxæ; face discally depressed and somewhat flattened.

Fig. 59.—*Calcagninus picturatus.*

Length excl. tegm., ♂, 15; exp. tegm. 44 millim.

Hab. Nilgiri Hills, northern slopes (*Hampson*).

* A character omitted by the artist in the above figure.

b. *Lateral pronotal margins a little ampliated and toothed.*

1637. **Calcagninus nilgiriensis,** *Dist.* (Leptopsaltria) *A. M. N. H.* (5) xx, p. 228 (1887); *id.* (Calcagninus) *Mon. Orient. Cicad.* p. 137, t. viii, f. 15, *a, b* (1892).

Head and thorax above olivaceous-green; head with the front broadly margined with black, the vertex with a streak behind eyes, some irregular anterior markings, and area of ocelli black; pronotum with two central longitudinal fasciæ united posteriorly, on each side of these a curved discal fascia, and the incisures broadly piceous; mesonotum with a central longitudinal lanceolate fascia, on each side of which is an anterior obconical spot, followed by a small spot on anterior margin, a broad sublateral fascia, and two spots in front of cruciform elevation black; abdomen more ochraceous in hue, the segmental margins narrowly black, and with two discal series of large spots and a marginal series of smaller spots on each side piceous; head beneath, sternum, and legs olivaceous-green; anterior margin and two central fasciæ to face, some irregular spots between face and eyes, base and apex of abdomen beneath, apices of femora, tibiæ, and tarsi more or less piceous; apex of rostrum piceous and just passing the posterior coxæ; tegmina and wings hyaline, the venation alternately black and ochraceous; tegmina with a few obscure black markings at base, the costal membrane greenish-ochraceous, an ochraceous and fuscous spot at base of upper ulnar area, and the transverse veins at bases of second and third apical areas in male, and the three upper apical areas in female, infuscated, in some specimens there are a submarginal series of small fuscous spots near the apices of the longitudinal veins to apical areas, while in some other varieties the tegmina are practically unspotted.

Length excl. tegm., ♂ & ♀, 16 to 22; exp. tegm. 50 to 57 millim.

Hab. Nilgiri Hills, northern slopes (*Hampson*).

Genus GUDABA, nov.

Type, *G. marginata,* Dist.

Distribution. Burma.

Head (including eyes) about as broad as base of mesonotum, its length about equal to the space between eyes, front prominent; pronotum about as long as head, its lateral margins obliquely straight, its posterior lateral angles angulated; abdomen somewhat cylindrical, longer than space between apex of head and base of cruciform elevation; tympanal coverings very much shorter and narrower than the tympanal orifices; second and third ventral segments in male furnished with a tubercle near each lateral margin, that on the second segment longest; opercula in male short, transverse, not passing basal abdominal segment; anterior femora strongly spined beneath; rostrum about reaching the posterior coxæ; tegmina and wings hyaline; tegmina with eight, wings with five apical areas.

1638. **Gudaba marginata**, *Dist.* (Calcagninus) *A. M. N. H.* (6) xx, p. 19 (1897).

Body and legs ochraceous, apex of abdomen black; tegmina hyaline with a slight ochraceous tint, costal membrane and venation ochraceous, the outer margin somewhat broadly fuscous; wings a little paler hyaline, venation ochraceous; both tegmina and wings a little dark ochraceous on the claval areas; opercula in male short, subquadrangular.

Fig. 60.—*Gudaba marginata.*

Length excl. tegm., ♂, 15; exp. tegm. 38 millim.
Hab. Burma; North Chin Hills (*Watson*).

Genus KHIMBYA.

Khimbya, *Dist. A. M. N. H.* (7) xv, p. 307 (1905).

Type, *K. evanescens*, Walk.
Distribution. British India.

Head more or less deflected before eyes, its length considerably shorter than space between eyes, margins of front and vertex subobliquely continuous; pronotum distinctly shorter than mesonotum, its lateral margins sinuate, but not dentate; abdomen much longer than space between apex of head and base of cruciform elevation; tympana imperfectly covered, the flaps shorter and narrower than tympanal cavities; rostrum usually not quite reaching posterior coxæ; opercula in male inwardly obliquely divergent, extending to about third abdominal segment; anterior femora with at least two spines on their under surface; tegmina variable in breadth, either with the greatest breadth more than or equal to a third of their length, apical areas eight, basal cell much longer than broad.

A. *Greatest width of tegmina more than a third their length.*
a. *Tympanal flaps only a little shorter than tympanal orifices.*
a. *Opercula in male ovate, narrowing at apices.*

1639. **Khimbya evanescens**, *Walk.* (Dundubia) *Ins. Saund., Hom.* p. 6 (1858); *Dist.* (Pomponia) *Mon. Orient. Cicad.* p. 72, t. x, f. 13, *a, b* (1890).

Head and thorax above ochraceous; head with striæ to front, area of ocelli, and the whole lateral vertical area black; pronotum with two central longitudinal fasciæ united posteriorly, a sublateral anterior line, and margins of the posterior lateral angles black; mesonotum with a central longitudinal fascia, on each side of which is a shorter and somewhat inwardly curved fascia, followed by a spot on anterior margin, a broken sublateral fascia, and two small

spots in front of cruciform elevation black; abdomen above tinted with testaceous and greyishly pilose, with a discal segmental series of spots and a smaller lateral series piceous; body beneath and legs pale ochraceous, the abdomen somewhat thickly greyishly pilose; striæ and central sulcation to face, space between face and

Fig. 61.—*Khimbya evanescens.*

eyes, and apical area of abdomen piceous; tegmina and wings hyaline, the venation and costal membrane to tegmina pale ochraceous; tegmina with the transverse veins at bases of second and third apical areas, the longitudinal veins to first and second apical areas, and a series of spots at apices of longitudinal veins to apical areas piceous; wings with the inner edges of outer margin fuscous.

Length excl. tegm., ♂, 18 to 21; exp. tegm. 45 to 56 millim.

Hab. Dehra Dun (*Mackinnon*). Burma; North Chin Hills (*Watson*).

a'. Opercula in male acutely triangular.

1640. **Khimbya cuneata**, *Dist.* (Pomponia) *A. M. N. H.* (6) xx, p. 19 (1897).

♂. Head black with some marginal testaceous streaks to front and the same at base; pronotum ochraceous, with two central longitudinal fasciæ, the incisures, and edges of posterior margin black, two castaneous spots on posterior lateral angles; mesonotum ochraceous, with a central longitudinal fascia, on each side of which is an obconical spot, followed by a small anterior spot, a broad sublateral fascia, and two rounded spots in front of the cruciform elevation black; abdomen above pale castaneous, the three basal segments posteriorly narrowly ochraceous at the lateral margins, posterior segmental margins piceous; sternum and opercula in male pale ochraceous; face, legs, and abdomen beneath brownish-ochraceous; tegmina and wings hyaline, the venation either ochraceous or castaneous; tegmina with the costal membrane ochraceous, and the transverse veins at bases of second and third apical areas infuscated.

Length excl. tegm., ♂, 25; exp. tegm. 66 millim.

Hab. Burma; North Chin Hills (*Watson*).

B. *Greatest breadth of tegmina about one-third their length.*

b. *Tympanal flaps almost as long as tympanal orifices.*

b. Rostrum passing posterior coxæ.

1641. **Khimbya sita**, *Dist.* (Cosmopsaltria) *Tr. E. S.* 1881, p. 636; *Atkins. J. A. S. Beng.* liii, p. 226 (1885); *Dist. Mon. Orient. Cicad.* p. 58, t. iv, f. 5, *a*, *b* (1890).

Pale brownish-ochraceous; head with a central spot which is furcate anteriorly and an oblique spot on each side of base of front, area of ocelli, two transverse spots on lateral areas of vertex, and a longitudinal line near inner margins of eyes black; pronotum with two central longitudinal fasciæ united posteriorly, with a small discal waved line on each side, and the incisures black; two castaneous spots on each posterior lateral angle; mesonotum with a central longitudinal fascia, on each side of this a subclavate, smaller, and suboblique fascia, followed by two linear spots on anterior margin, a discal waved irregular fascia on each lateral area, and two spots in front of the cruciform elevation black; abdomen with the segmental margins more or less piceous and with a lateral segmental series of piceous spots; body beneath and legs ochraceous and unicolorous, bases and apices of tarsi and apex of rostrum piceous; tegmina and wings hyaline, venation basally ochraceous and apically fuscous; tegmina with the transverse veins at bases of second and third apical areas infuscated, transverse veins at bases of first and second ulnar areas fuscous, ochraceous at their junction.

Length excl. tegm. 24; exp. tegm. 73 millim.

Hab. Bombay (*Coll. Dist.*). Karwar (*Ind. Mus.*).

c. *Tympanal flaps much shorter than tympanal orifices.*

b'. Rostrum not reaching posterior coxæ.

1642. **Khimbya diminuta**, *Walk.* (Dundubia) *List Hom.* i. p. 74 (1850); *id. tom. cit.* iv, t. i, f. 1 (1852); *Dist.* (Cosmopsaltria) *Mon. Orient. Cicad.* p. 59, t. xii, f. 14, *a*, *b* (1890).

Head and thorax above dark ochraceous; head much suffused with piceous; pronotum with two central longitudinal linear fasciæ, on each side of which is a discal curved line, and the incisures black, the lateral and posterior margins paler ochraceous with somewhat confluent castaneous markings on each posterior lateral angle; mesonotum with a central sublanceolate fascia, on each side of which is a slender obconical spot, followed by a small anterior spot and a broad sublateral fascia, and two small spots in front of cruciform elevation black; abdomen above ochraceous, much suffused with piceous on disk, the apex and some lateral segmental spots also piceous; body beneath and legs ochraceous; opercula dull stramineous; face with the lateral striations, a spot between face and eyes, bases and apices of tarsi, and apex of

rostrum piceous; tegmina and wings hyaline, venation mostly fuscous; tegmina with the transverse veins at bases of second and third apical areas infuscated, and in some specimens with faint and small marginal spots at apices of longitudinal veins to the upper apical areas.

Length excl. tegm., ♂, 19 to 20; exp. tegm. 50 to 55 millim.

Hab. Bombay (*Dixon*). Karwar (*Coll. Dist.*). Tenasserim; Thaungyin (*Bingham*).

Genus LETHAMA.

Lethama, *Dist. A. M. N. H.* (7) xv, p. 307 (1905).

Type, *L. locusta*, Walk.

Distribution. British India.

Head horizontal, as long as space between eyes, not anteriorly deflected, front very prominent, margins of front and vertex obliquely subcontinuous; pronotum as long as mesonotum, its lateral margins oblique, sinuate, obscurely dentate; abdomen considerably longer than space between apex of head and base of cruciform elevation; tympana imperfectly covered, the flaps shorter and narrower than the tympanal cavities; rostrum about reaching the posterior coxæ; anterior femora armed beneath with two or three strong spines; opercula extending to more than half the length of the abdomen, situate wide apart and on the lateral abdominal areas; tegmina broad, their greatest breadth more than one-third of their length, apical areas eight, basal cell much longer than broad.

1643. **Lethama locusta,** *Walk.* (Cephaloxys) *List Hom.* i. p. 236 (1850); *Atkins.* (Mogannia) *J. A. S. Beng.* liii, p. 233 (1885); *Dist.* (Dundubia) *Mon. Orient. Cicad.* p. 41, t. ix, f. 1, *a, b* (1889).

Body brownish-ochraceous; pronotum with the margins paler

Fig. 62.—*Lethama locusta.*

in hue; mesonotum with two obscure obconical spots on anterior margin, their outer edges black, and two small dark spots in front

of cruciform elevation; lateral margins of the abdomen above paler in hue and ornamented with a segmental series of black spots; abdomen beneath paler in hue; head, sternum, legs, and opercula ochraceous; tegmina and wings hyaline, venation and costal membrane of the first ochraceous.

Length excl. tegm., ♂ 34, ♀ 30; exp. tegm. 83 millim.

Hab. Bombay (*Leith and Dixon*).

In the specimen above figured the wings possess a short supplementary apical area, making seven in all; this is, however, purely varietal, and all the other specimens I have examined possess six only.

Genus **BASA**.

Basa, *Dist. A. M. N. H.* (7) xv, p. 309 (1905).

Type, *B. singularis*, Walk.

Distribution. India.

Head with front prominent and produced, its lateral margins at right angles with anterior margins of vertex, its breadth between eyes much narrower than base of mesonotum, its length about equal to that of pronotum; pronotum a little shorter than mesonotum, its lateral margins convex anteriorly and concavely sinuate before posterior angles, which are ampliated; abdomen much longer than space between apex of head and base of cruciform elevation, its lateral areas obliquely depressed above; beneath with the disk somewhat flat and the marginal areas obliquely directed upward; tympanal flaps shorter, but not narrower, than tympanal cavities; opercula transverse and just passing base of abdomen; anterior femora strongly spined beneath near apex; anterior tibiæ longer than femora, anterior tarsi more than half the length of tibiæ; tegmina and wings long and narrow, greatest width of the first only equal to a third of length, its basal cell much longer than broad, fourth ulnar area much compressed at base of third, apical areas eight.

1644. **Basa singularis**, *Walk.* (Dundubia) *List Hom. Suppl.* p. 7 (1858); *Atkins. J. A. S. Beng.* liii, p. 225 (1885); *Dist.* (Pomponia) *Mon. Orient. Cicad.* p. 72, t. vi, f. 4, *a*, *b* (1890).

Head and thorax above greenish-ochraceous; head with marginal striæ to front, area of ocelli, and two transverse spots at apical angles of vertex fuscous; pronotum with two central longitudinal piceous fasciæ, united posteriorly by a prominent arcuated spot, the lateral areas brownish-ochraceous; mesonotum with four somewhat obscure obconical spots, the outermost longest, a broken sublateral fascia, a central lanceolate spot, and two spots in front of cruciform elevation brownish-ochraceous; abdomen with the tympanal flaps, the central disk, and some obscure lateral spots brownish-ochraceous; body beneath and legs brownish-ochraceous; face, lateral margins of sternum, and opercula (in male) virescent;

tegmina and wings hyaline with a pale bronzy tint, the tegmina a little darker, venation ochraceous; tegmina with the transverse veins at bases of apical areas, irregular spots at apices of longitudinal veins to apical areas, some nebulous apical spots, and a

Fig. 63.—*Basa singularis.*

waved line between bases of second ulnar and eighth apical areas brownish-ochraceous; a series of small fuscous spots on extreme margins of both tegmina and wings.

Length excl. tegm., ♂, 22; exp. tegm. 72 to 74 millim.

Hab. Darjiling (*Stockholm Mus.*). Sikhim (*Pilcher, Brit. Mus.*).

Division *GÆANARIA*.

Gæanaria, *Dist. A. M. N. H.* (7) xv, p. 383 (1905).

This division, at present represented by three Eastern genera, is recognized principally by the following characters:—The tegmina and wings are opaque and generally more or less brilliantly coloured; the lateral margins of the pronotum are neither ampliated nor dilated; the tympanal orifices are largely exposed, the tympanal coverings being a little narrower and much shorter than the orifices and with their anterior margins convex.

Synopsis of Genera.

A. Tegmina with the venation normal; apical areas eight.
- a. Head longer than pronotum, front somewhat porrectly produced.
  - *a.* Greatest breadth of tegmina more than one-third their length .... GÆANA, p. 145.
- b. Head not longer than pronotum, obliquely depressed in front of eyes.
  - *b.* Greatest breadth of tegmina only about one-third their length .... BALINTA, p. 148.

B. Tegmina with the venation reticulate, ulnar and apical areas broken up into many cellular divisions .... TALAINGA, p. 150.

Genus GÆANA.

Gæana, *Amy. & Serv. Hém.* p. 463 (1843); *Stål, Hem. Afr.* iv, p. 4 (1866); *Dist. Mon. Orient. Cicad.* p. 104 (1892).

Type, *G. maculata*, Drury.

Distribution. Oriental and Malayan Regions, and found in Eastern China.

Body long and moderately slender in the male, much shorter in the female; head (including eyes) about equal in width to base of mesonotum, longer than pronotum, front somewhat porrectly produced, ocelli about twice the distance from eyes as from each other; pronotum with the lateral margins very slightly convex, the posterior lateral angles moderately lobately produced; abdomen in male long, moderately slender, in the female only about as long as space between apex of head and base of cruciform elevation; tympanal coverings in male small, both narrower and much shorter than the tympanal orifices; opercula in male small, transverse, not passing base of abdomen; anterior femora strongly spined beneath; tegmina and wings opaque, the first with their outer margins somewhat convexly rounded, their greatest breadth more than one-third their length.

1645. **Gæana maculata**, *Drury* (Cicada), *Ins.* ii. p. 68, t. xxxvii. f. 1 (1773); *Fabr.* (Tettigonia) *Syst. Ent. App.* p. 831 (1775); *Amy. & Serv.* (Gæana) *Hém.* p. 464 (1843); *Stål, Öfv. Vet.-Ak. Förh.* 1862, p. 483; *Dist. Mon. Orient. Cicad.* p. 104, t. iii, f. 17, *a, b* (1892).

Var. a. *Dist. Mon. Orient. Cicad.* p. 104 (1892).

Var. consors, *White* (Gæana) *MS., Dist. Mon. Orient. Cicad.* p. 105, t. iii, f. 20, *a, b* (1892).

Fig. 64.—*Gæana maculata*, var. *consors*.

Body above black; head with a spot between ocelli and eyes, mesonotum with four discal spots, a spot on each lateral margin and a spot on each side of cruciform elevation, and abdomen with

the apical segmental margin ochraceous; body beneath and legs black; a spot on each side of face, two small spots on each side of mesosternum, and a small spot near posterior coxæ ochraceous; tegmina and wings black; tegmina greyish-brown towards apex and with five ochraceous spots in two transverse series, two near base and three about centre; wings with a broad transverse sub-basal patch, followed by two contiguous spots near costal margin, ochraceous, sometimes greyish, and with a submarginal series of greyish-brown spots in apical areas; rostrum reaching posterior coxæ; opercula in male small and widely separated.

Var. *a.* Differs from the typical form by having the ochraceous markings to the tegmina and wings replaced by pale greenish, the upper basal spot of tegmina absent, the lower spot replaced by two smaller ones; both tegmina and wings with a submarginal series of small whitish spots, and a small one of the same colour in each of the two upper ulnar areas.

Var. *consors.* In this variety the wings have a much larger basal patch of either ochraceous or pale greenish; other markings to tegmina and wings as in var. *a*, except that both basal spots are present in tegmina as in typical form.

Length excl. tegm., ♂ 35, ♀ 33; exp. tegm., ♂ & ♀, 90 to 102 millim.

Hab. Sikhim. Assam; Nága and Khási Hills (*Chennell*). Margherita (*Doherty*). Samagooting and Dhansiri Valley (*Ind. Mus.*). Burma; Karennee (*Fea*). Tonkin. China.

1646. **Gæana stellata,** *Walk.* (Huechys) *Ins. Saund., Hom.* p. 27 (1858); *Atkins. J. A. S. Beng.* lv, p. 154 (1886); *Dist.* (Gæana) *Mon. Orient. Cicad.* p. 105, t. iii, f. 15, *a, b* (1892).
Var. a. *Dist. Mon. Orient. Cicad.* p. 105.

♂. Body with the colour and markings of *G. maculata*, but with the abdominal segment beneath somewhat broadly margined with ochraceous; tegmina pale brownish-ochraceous, pale fuscous on about apical third, base (including basal cell) blackish, a transverse series of three large white spots inwardly margined with a blackish suffusion near centre, a submarginal series of smaller whitish spots in apical areas, and a still smaller spot in each of the three upper ulnar areas; wings blackish, a little paler between the veins, with a pale spot at inner basal margin, a small discal ochraceous streak, a series of four or five submarginal whitish spots situate in the apical areas, and with the anal area greyish-brown margined with fuscous; rostrum reaching the posterior coxæ.

Var. *a.* ♀. Tegmina with the ochraceous replaced with a hue of dark cinnamon, and the fuscous shadings nearly black; wings jet-black, with the pale markings as in typical form.

Length excl. tegm., ♂, 38 ♀, 30; exp. tegm., ♂ & ♀, 98 millim.

Hab. Assam; Khási Hills (*Chennell*). Margherita (*Doherty*).

1647. **Gæana sulphurea**, *Hope* (Cicada) *in Royle's Illustr. Bot. Himal., Introd.* p. liv, t. x, f. 2 (1839); *Atkins.* (Gæana) *J. A. S. Beng.* liii, p. 223 (1885); *Dist. Mon. Orient. Cicad.* p. 105, t. iii, f. 22, *a, b* (1892).
Cicada pulchella, *Westw. Arc. Ent.* ii, p. 34, t. lvii, f. 1 (1842).

Body black; lateral margins of vertex of head continued beyond inner margins of eyes, two oblique discal spots on each side of pronotum, a transverse series of four linear spots to mesonotum, and the margins of anal appendage ochraceous or reddish-ochraceous; body beneath and legs black; a fascia on each side of face, sternal streaks, a spot near base of tegmina, posterior abdominal segmental margins (obliterated centrally), and the anal appendage ochraceous; tegmina and wings sulphur-yellow; tegmina with the inner margin of costal membrane, a curved and inwardly angulated fascia crossing near middle, and the whole apical area (including the upper ulnar area) piceous, costal membrane yellow; wings with the apical area (broadly, and narrowing to anal angle) piceous; rostrum reaching the posterior coxæ.

Length excl. tegm., ♂, 35 to 37, ♀ 25; exp. tegm., ♂ & ♀, 76 to 92 millim.

Hab. Sikhim (*Ind. Mus.*). Nepal (*Coll. Dist.*). Mussooree (*Mackinnon*). Darjiling (*Stockh. Mus.*).

1648. **Gæana atkinsoni**, *Dist. A. M. N. H.* (6) iii, p. 49 (1889); *id. Mon. Orient. Cicad.* p. 107, t. ix, f. 10, *a, b* (1892).

Head, pronotum, and mesonotum black; a transverse fascia between eyes, posterior margin of pronotum, the margins of two anterior obconical spots and lateral margins to mesonotum, and the cruciform elevation ochraceous; abdomen above and beneath ochraceous; head beneath, sternum, and legs black; apical half of face, a transverse spot between face and eyes, and disk and margins of sternum ochraceous; opercula black, their base and outer margin ochraceous; tegmina black, the venation, a narrow, oblique, transverse fascia near base, a straighter and wider transverse fascia near middle pale ochraceous, two subapical spots and a spot in the sixth apical area reddish-ochraceous (these spots are inconstant); wings bright carmine-red, apical and posterior margins and a subapical transverse fasciate spot black; rostrum reaching the posterior coxæ.

Length excl. tegm., ♂ 35, ♀ 30; exp. tegm., ♂ & ♀, 80 to 85 millim.

Hab. Karwar (*Coll. Dist.*). Travancore (*Coll. Dist.*).

1649. **Gæana festiva**, *Fabr.* (Tettigonia) *Syst. Rhyng.* p. 41. 42 (1803); *Stål* (Gæana), *Berl. ent. Zeit.* x, p. 170 (1866); *Dist. Mon. Orient. Cicad.* p. 106, t. iii, f. 18, *a, b* (1892).
Cicada thalassina, *Guér. & Perch. Gen. Ins., Hém.* t. 2 (1834).
Cicada percheroni, *Guér. Ic. Règn. An., Ins.* p. 355 (1838).

Gæana consobrina, *White, MS.*
Var. a. *Dist. Mon. Orient. Cicad.* p. 107 (1892).
Var. b. *Dist. tom. cit.* t. iii, f. 19, *a, b.*

Body above black; ocelli and a broad fascia behind eyes reddish-ochraceous; margins of pronotum, four discal fasciæ (of which the two central ones are angulated) to mesonotum, and margins of metanotum greenish-ochraceous; body beneath and legs black; apical half of face and a spot between face and eyes reddish-ochraceous; tegmina greenish-ochraceous, the radial area, a transverse fascia crossing centre from apex of radial area (near which is a large triangular spot), apex and outer and inner margins, and two small spots near base piceous or black, the black area at apex is more or less broken and sometimes includes a small greenish-ochraceous spot; wings pale bluish-green, the apex broadly black and containing a pale bluish spot, the margins more narrowly black towards anal angle; rostrum reaching the posterior coxæ.

Var. *a*. Pronotum with a distinct central pale longitudinal fascia.

Var. *b*. Tegmina and wings with the black coloration much increased; tegmina only exhibiting three irregular and angulated greenish spots, sometimes a small subapical one; wings with more than the apical half black, enclosing three pale bluish spots.

Length excl. tegm., ♂ 30, ♀ 26; exp. tegm., ♂ & ♀, 76 to 78 millim.

Hab. Sikhim (*Ind. Mus.*). Assam; south of Brahmaputra (*Chennell*). Darjiling (*Stockh. Mus.*).—Sumatra. Amboina.

Genus BALINTA.

Balinta, *Dist. A. M. N. H.* (7) xv, p. 383 (1905).

Type, *B. octonotata*, Westw.

Distribution. Oriental Region.

Head (including eyes) about as wide as base of mesonotum and as long as pronotum, obliquely depressed in front of eyes; pronotum about as long as mesonotum, its lateral margins sinuate, the posterior angles moderately dilated; abdomen in male much longer than space between apex of head and base of cruciform elevation; tympanal coverings both shorter and narrower than the tympanal orifices, which are most exposed inwardly; opercula in male small and transverse, widely separated, and not extending beyond base of abdomen; rostrum reaching posterior coxæ; anterior femora strongly spined beneath; tegmina and wings opaque; tegmina with their greatest breadth about one-third their length and with eight apical areas.

1650. **Balinta octonotata**, *Westw.* (Cicada) *Arc. Ent.* ii, p. 34, t. lvii, f. 2 (1842); *Atkins.* (Gæana) *J. A. S. Beng.* liii, p. 221 (1885); *Dist. Mon. Orient. Cicad.* p. 107, t. iii, f. 12, *a, b* (1892).

Huechys picta, *Walk. Ins. Saund., Hom.* p. 28 (1858); *Atkins. J. A. S. Beng.* lv, p. 155 (1886).
Var. a. *Dist. Mon. Orient. Cicad.* p. 108 (1892).
Var. b. *Dist. tom. cit.* t. iii, f. 13, *a, b*.

Head, pronotum, and mesonotum black; head with the basal margin of front and basal margin of vertex dull dark ochraceous; basal margin and a transverse basal spot to pronotum, lateral margins and two central angulated fasciæ to mesonotum connected with the cruciform elevation, and the anterior and posterior angles of the last dull dark ochraceous; abdomen reddish-ochraceous

Fig. 65.—*Balinta octonotata.*

with a central black longitudinal fascia; head beneath, sternum, and legs black, margins of face and abdomen beneath ochraceous; abdomen with base, a lateral series of spots, and base of sixth abdominal segment black; tegmina dark shining fuscous, the costal membrane and venation ochraceous, with four pale creamy spots, situate one near base, two about centre, and one near costal apex; wings sanguineous, with the apical and posterior margins (not extending to anal area) fuscous.

Var. *a.* Basal spot to tegmina obliterated.

Var. *b.* Basal spot to tegmina obliterated, and the two central spots replaced by a narrow transverse fascia.

Length excl. tegm., ♂, 25 to 27; exp. tegm. 60 to 64 millim.

Hab. Sikhim (*Ind. Mus.*). Assam; Margherita (*Doherty*). Burma (*Bingham*); Upper Regions (*Coll. Dist.*).

1651. **Balinta tenebricosa**, *Dist.* (Gæana) *Ann. Mus. Civ. Gen.* xxvi, p. 454, t. iv, f. 2, *a, b* (1888); *id. Mon. Orient. Cicad.* p. 108, t. iii, f. 14, *a, b* (1892).
Var. *a. Dist. tom. cit.* p. 108.

Head and pronotum ochraceous; head with the anterior margin and a basal spot to front, and a broad fascia between eyes, black; pronotum with a broad central longitudinal fascia (which is widened and angulated anteriorly and posteriorly), followed on each side by two spots, an oblique fascia, a patch at lateral margins, and a spot on each side of posterior margin black; mesonotum

and abdomen black, the first crossed by two discal longitudinal ochraceous fasciæ, the anterior angles of cruciform elevation, and a spot on each side of base of same ochraceous; body beneath and legs black; margins of the face and under surface of the femora reddish-ochraceous; a few obscure sternal ochraceous spots; tegmina dark bronzy-brown, the costal membrane, the venation, a costal spot at base of upper ulnar area, beneath which are two discal spots, and a subapical spot ochraceous; wings bluish-black tinged with carmine; bases of both wings and tegmina narrowly carmine-red.

Var. *a*. Tegmina only possessing the lower discal spot, the other spots obliterated.

Length excl. tegm., ♂, 22; exp. tegm. 54 millim.

Hab. Burma; Teinzo (*Fea*).

1652. **Balinta delinenda,** *Dist.* (Gæana) *A. M. N. H.* (6) i, p. 291 (1888); *id. Mon. Orient. Cicad.* p. 108, t. iii, f. 16, *a, b* (1892).
Huechys octonotata, *Walk.* (*nec Westw.*) *List Hom.* i, p. 253 (1851).

Body above brownish-ochraceous; head with the apex of front and a transverse fascia extending across area of ocelli black; pronotum with a central hourglass-shaped fascia, and two large oblique spots on each side, black; mesonotum with a central fascia (somewhat similar to that on pronotum) and a large spot on each lateral margin black; cruciform elevation black, its anterior angles ochraceous; abdomen with the posterior segmental margins black; body beneath and legs brownish-ochraceous; disk of face and a spot before eyes black; tegmina pale brownish-ochraceous; wings reddish-brown, with about basal third carmine-red.

Length excl. tegm., ♂, 19; exp. tegm. 47 millim.

Hab. Sylhet (*Brit. Mus.*). Cochin (*Coll. Dist.*).

Genus TALAINGA.

Talainga, *Dist. A. M. N. H.* (6) v, p. 166 (1890); *id. Mon. Orient. Cicad.* p. 109 (1892).

Type, *T. binghami*, Dist.

Distribution. Burma, Tonkin, China.

♀. Head (including eyes) a little narrower than base of mesonotum, about as long as breadth between eyes, front globose and prominent, shorter than vertex; pronotum about as long as mesonotum, its lateral margins a little convex, angularly incised before posterior angles which are ampliated; abdomen somewhat cylindrical, longer than space between apex of head and base of cruciform elevation; tympanal coverings small and lateral; anterior femora robustly spined beneath: tegmina talc-like, semi-opaque, the apical half with the venation reticulate and forming a mass of small cellular areas, sometimes the ulnar areas are crossed

by transverse veins; basal cell about twice as long as broad; wings with the posterior margin deeply sinuate near abdominal area; apical areas six, sometimes broken up by transverse veins into a more numerous and reticulate series.

1653. **Talainga binghami,** *Dist. A. M. N. H.* (6) v, p. 167 (1890); *id. Mon. Orient. Cicad.* p. 109, t. xiii, f. 4, *a*, *b*, (1892).

Body and legs black; eyes ochraceous, their posterior margins pale sanguineous; pronotum with the lateral margins and a curved fascia on lateral areas behind eyes pale sanguineous, posterior margin (excepting extreme centre) narrowly ochraceous; abdomen above with the segmental margins more or less greyishly pilose;

Fig. 66.—*Talainga binghami.*

tegmina talc-like, semi-opaque, creamy-ochraceous, veins black and margined with the same colour, the apical halves being composed of numerous small black-margined cellular areas, costal membrane ochraceous, basal cell shaded with black; wings pale bluish-green, the venation more or less concolorous, excepting that delimiting the more or less reticulate apical areas, margins blackish from apex to the sinuation near abdominal area.

Length excl. tegm., ♀, 23 to 26; exp. tegm. 70 to 77 millim.

Hab. Burma; Karen Hills (*Bingham*).

Division *MOGANNIARIA*

Moganniaria, *Dist. A. M. N. H.* (7) xv, p. 385 (1905).

Tegmina and wings hyaline, the tegmina spotted or in part more or less brilliantly coloured; body ovate, more or less attenuated anteriorly and posteriorly; head with the front more or less triangularly produced: tympanal flaps present, but incomplete, the tympanal orifices in part exposed.

At present I include two genera in this division, one Neotropical in habitat, the other (*Mogannia*) being well represented in British India.

Genus MOGANNIA.

Mogannia, *Amy. & Serv. Hém.* p. 467 (1843); *Stål, Hem. Afr.* iv, p. 5 (1866); *Dist. Mon. Orient. Cicad.* p. 118 (1892).
Cephaloxys, *Sign. Ann. Soc. Ent. Fr.* 1847, p. 294.

Type, *M. conica*, Germ.

Distribution. Oriental and Malayan Regions, and found in East China.

Body short, broad, robust; head conically produced, including eyes much narrower than base of mesonotum, as long or slightly longer than pronotum, front as long or slightly longer than vertex; pronotum narrower anteriorly than posteriorly, the lateral margins oblique, not ampliated, the posterior lateral angles a little lobately rounded; abdomen a little shorter or almost as long as space between apex of head and base of cruciform elevation; tympanal coverings small and rudimentary; anterior femora spined beneath; opercula in male small, usually obliquely convex and not completely covering the cavities; tegmina with their basal halves usually more or less brilliantly coloured, sometimes opaque, apical areas eight; wings with six apical areas.

1654. **Mogannia conica,** *Germ.* (Cicada) *Thon's Arch.* ii. 2, p. 39 (1830): *Stål* (Mogannia), *Öfv. Vet.-Ak. Förh.* 1862, p. 483; *Dist. Mon. Orient. Cicad.* p. 122, t. xiv, f. 18, *a*, *b* (1892).
Mogannia illustrata, *Amy. & Serv. Hém.* p. 467, t. ix, f. 4 (1843).
Cephaloxys hemelytra, *Sign. Ann. Soc. Ent. Fr.* 1847, p. 295.
Mogannia indicans, ignifera, *et* avicula, *Walk. List Hom.* i, pp. 249, 250 (1850); *tom. cit.* iv, t. ii, f. v (1852).
Mogannia recta, *Walk. List Hom. Suppl.* p. 39 (1858).
Mogannia histrionica, *Uhler, Proc. Ac. Nat. Sci. Philad.* 1862, p. 283.
Mogannia venutissima, *Stål, Öfv. Vet.-Ak. Förh.* 1865, p. 154.

Body and legs black, above with a more or less well-defined and broken longitudinal, dull ochraceous fascia, extending from front of head to apex of abdomen, and generally forming a more or less distinct hourglass-shaped fascia on pronotum, in some specimens this fascia is very indistinct; face and disk of abdomen beneath brownish-ochraceous, margins of coxæ and trochanters pale ochraceous; tegmina pale hyaline; the basal halves fuscous and semi-opaque, costal membrane and extreme base sanguineous; wings hyaline with their bases narrowly sanguineous.

Var. *a. ignifera*, Walk. Body and legs brownish-ochraceous: basal opaque coloration of tegmina pale ochraceous, outwardly margined with fuscous near costal margin.

Var. *b. indicans*, Walk. = *histrionica*, Uhler. Body black or brownish; tegmina with the basal opaque area containing a transverse, curved, ochraceous or reddish fascia a little before its apex.

Var. *c. illustrata*, Amy. & Serv. Tegmina with the opaque basal area outwardly margined with fuscous and with an apical ochraceous spot.

Var. *d*. The opaque coloration to tegmina uniformly reddish-ochraceous, occupying nearly the whole of lower apical area and outwardly margined with fuscous; lateral and posterior margins of pronotum also ochraceous.

Length excl. tegm., ♂ & ♀, 13 to 16; exp. tegm. 32 to 40 millim.

Hab. Assam; Khási Hills (*Chennell*); Margherita (*Doherty*). Tenasserim; Thagata (*Fea*).—Java. Sumatra. Philippines. China.

The typical form and var. *a*, according to present knowledge, appear to be best represented in British India.

1655. **Mogannia cyanea**, *Walk. List Hom. Suppl.* p. 40 (1858); *Dist. Mon. Orient. Cicad.* p. 121, t. xiv, f. 15 *a, b* (1892).

Body and legs bright shining indigo-blue; intermediate and posterior coxæ margined with dull ochraceous; tegmina pale hyaline, basal half shining ochraceous; a spot at apex of radial area and the venation of about apical half fuscous; wings pale hyaline, the base narrowly ochraceous and the venation more or less of the same colour; the conically produced front of head is marginally very strongly pilose.

Length excl. tegm. 16; exp. tegm. 40 to 44 millim.

Hab. Assam; Margherita and Nága Hills (*Doherty*). Burma; Ruby Mines (*Doherty*).—North China.

1656. **Mogannia funebris**, *Stål, Öfv. Vet.-Ak. Förh.* 1865, p. 155; *Dist. Ann. Mus. Civ. Gen.* xxvi, p. 455, t. iv, f. 1, *a, b* (1888); *id. Mon. Orient. Cicad.* p. 122, t. xiv, f. 17, *a, b* (1892).

Brassy-black, fuscously pilose; tegmina and wings hyaline; tegmina with about basal half black, the basal cell and a fascia at apex of the black basal area dull lutescent.

Var. *a*. Agreeing with the typical form, but not possessing the pale fascia at apex of black basal area.

Length excl. tegm. 15 to 19; exp. tegm. 34 to 46 millim.

Hab. Sylhet (*Stockh. Mus*). Burma; Bhamó (*Fea*).

1657. **Mogannia effecta**, *Dist. A. M. N. H.* (6) ix, p. 316 (1892); *id. Mon. Orient. Cicad.* p. 122, t. xiv, f. 16, *a, b* (1892).
Mogannia effecta, *Walk. MS.*

Body and legs very dark bluish-black; tegmina and wings hyaline, the venation fuscous; tegmina with the basal half bluish-black, this colour broadly margined at base, costal membrane, claval area, and transversely just before its extremity with sanguineous.

Fig. 67.—*Mogannia effecta.*

Var. *a*. Black area of tegmina streaked with pale fuscous, and the sanguineous margins to same very dull on costal membrane and almost absent on costal area.

Var. *b*. Venation in black area of tegmina sanguineous and concolorous with the surrounding margins.

Length excl. tegm. 17 to 19; exp. tegm. 42 to 48 millim.

Hab. Sikhim (*Ind. Mus.*). Assam; Nága Hills (*Doherty*). Darjiling (*Coll. Dist.*)—Sumatra.

1658. **Mogannia obliqua,** *Walk. List Hom. Suppl.* p. 39 (1858); *Atkins. J. A. S. Beng.* liii, p. 232 (1885); *Dist. Mon. Orient. Cicad.* p. 119, t. xiv, f. 10, *a, b* (1892).

Body above pale greenish or greenish-ochraceous; head with the apex of front and the basal area piceous; pronotum with a central triangular black fascia; mesonotum with a broad black central fascia constricted near middle; body beneath, femora, and anterior tibiæ and tarsi more or less piceous; intermediate and posterior tibiæ and tarsi pale greenish or greenish-ochraceous; tegmina and wings hyaline, the venation dull ochraceous or fuscous; tegmina with the costal membrane pale castaneous, an oblique transverse fuscous fascia extending from end of radial area to apex of lower ulnar area (where it is more or less irregularly continued along inner margin to base), basal cell, and base slightly suffused with pale brilliant ochraceous and greenish; extreme bases and lower basal margins of tegmina and wings sanguineous.

Length excl. tegm., ♂ & ♀, 11 to 14; exp. tegm. 44 to 50 millim.

Hab. Sikhim (*Ind. Mus.*). Assam; Brahmaputra (*Chennell*); Nága Hills and Margherita (*Doherty*). Bengal; Mungphoo (*Coll. Dist.*). Burma; Momeit (*Doherty*). Rangoon and Karennee (*Fea*)—Java.

1659. **Mogannia viridis,** *Sign.* (Cephaloxys) *Ann. Soc. Ent. Fr.* 1847, p. 294; *Stål, Öfv. Vet-Ak. Förh.* 1862, p. 483; *Dist.* (Mogannia) *Mon. Orient. Cicad.* p. 119, t. xiv, f. 8, *a, b* (1892).

Cephaloxys rostrata, *Walk. List Hom.* i, p. 233 (1850).

Body and legs virescent, inclining to ochraceous or, in some specimens, reddish-ochraceous; tegmina and wings hyaline, the venation olivaceous or ochraceous, usually resembling the hue of the body; tegmina slightly suffused with greenish or ochraceous at base, the costal membrane generally reddish-ochraceous.

Length excl. tegm., ♂ & ♀, 15 to 18; exp. tegm. 45 to 47 millim.

Hab. Bengal; Mungphoo (*Coll. Dist.*). Assam; Nága Hills and Margherita (*Doherty*). Burma; Momeit (*Doherty*).—Malay Peninsula. Java.

Subfamily III. TIBICININÆ.

Tibicininæ, *Dist. A. M. N. H.* (7) xv, p. 304 (1905); *ante*, p. 57.

In this subfamily the tympana are completely exposed, the tympanal coverings being entirely absent.

The genera comprised in the Tibicininæ are of universal distribution.

Division *HUECHYSARIA.*

Huechysaria, *Dist. A. M. N. H.* (7) xv, p. 481 (1905).

Tegmina and wings opaque or semiopaque; lateral margins of the pronotum neither ampliate nor dentate; abdomen moderately robust but not transverse, longer than space between apex of head and base of cruciform elevation; tympana completely exposed, tympanal coverings entirely absent; tegmina with the apical areas variable in number, either eight or ten, or variably fluctuating between those numbers.

Synopsis of Genera.

A. Head with the face longitudinally sulcate.
  a. Head (including eyes) narrower than base of mesonotum.
    a. Tegmina with ten apical areas, in some varieties only nine.
      a'. Head longer than pronotum, front produced, but not excavated.
        *a*². Mesonotum (including cruciform elevation) longer than pronotum. GRAPTOTETTIX, p. 155.
  b. Head (including eyes) as wide as base of mesonotum.
    b. Tegmina with eight apical areas, in some varieties nine or ten.
      b'. Head about as long as pronotum.
        *b*². Mesonotum (including cruciform elevation) scarcely longer than pronotum .... HUECHYS, p. 157.
B. Head with the face not sulcate .... SCIEROPTERA, p. 158.

Genus GRAPTOTETTIX.

Graptotettix, *Stål, Hem. Afr.* iv, p. 4 (1866); *id. Berl. ent. Zeit.* x, p. 170 (1866); *Dist. Mon. Orient. Cicad.* p. 109 (1892).

Type, *G. guttatus*, Stål.

Distribution. Oriental and Malayan Regions.

Body moderately long and robust; head (including eyes) narrower than base of mesonotum, front long, convexly and somewhat flatly produced, a little shorter than vertex, the lateral margins of both discontinuous; pronotum a little shorter than head, its lateral margins nearly straight, the posterior lateral angles lobately produced; mesonotum (including cruciform elevation) longer than pronotum; abdomen longer than space between apex of head and base of cruciform elevation; tympana completely exposed, tympanal coverings entirely absent; opercula in male short, broad, not extending beyond base of abdomen; anterior femora strongly spined beneath; tegmina more or less opaque, apical areas usually ten, sometimes only nine in number, basal cell much longer than broad; wings semi-opaque or subhyaline.

1660. **Graptotettix guttatus**, *Stål, Berl. ent. Zeit.* x, p. 170 (1866); *Dist. Mon. Orient. Cicad.* p. 110, t. iii, f. 21, *a*, *b* (1892).

Head, pronotum, and mesonotum black; front of head, ocelli, and two large oblique spots (sometimes fused) on each lateral area of the pronotum bright ochraceous; mesonotum with two small very obscure central obconical spots, and with a large ochraceous spot on each lateral area; abdomen above pale castaneous, in some specimens tinged with ochraceous; head beneath, sternum, and

Fig. 68.—*Graptotettix guttatus.*

legs black; face bright ochraceous; opercula and abdomen pale castaneous; tegmina fuscous-brown, opaque, the venation ochraceous; extreme base, sometimes basal cell, and the costal membrane piceous; wings shining, bronzy, semi-opaque, extreme base piceous.

Length excl. tegm., ♂ 30, ♀ 27; exp. tegm., ♂ & ♀, 70 to 73 millim.

Hab. Sikhim (*Ind. Mus.*). Bhutan; Maria-Basti (*Durel*). Assam; Nága Hills (*Doherty*).

1661. **Graptotettix thoracicus**, *Dist. A. M. N. H.* (6) ix, p. 315 (1892); *id. Mon. Orient. Cicad.* p. 110 (1892).

Head, pronotum, and mesonotum bright pale ochraceous; abdomen pale sanguineous; pronotum with the posterior, lateral, and anterior (as far as behind eyes only) margins castaneous, and with two narrow, jet-black, central, discal, curved fasciæ; mesonotum with four castaneous obconical fasciæ, the central pair smallest; abdomen above ochraceous near base; body beneath and legs sanguineous; head beneath, anterior coxæ, and lateral margins of sternum ochraceous; spots to coxæ black; (in the specimen described the apex of one posterior femur and its tibia is almost black, the other posterior leg is uniformly sanguineous); tegmina and wings semi-hyaline, more or less tinged with castaneous (in the specimen described more so on one tegminum and wing than on the other), the venation ochraceous or castaneous.

Length excl. tegm., ♂, 28; exp. tegm. 75 millim.

Hab. Burma; Momeit (*Doherty*).

Genus HUECHYS.

Huechys, *Amy. & Serv. Hém.* p. 464 (1843); *Stål, Hem. Afr.* iv, p. 4 (1866); *Dist. Mon. Orient. Cicad.* p. 111 (1892).

Type, *H. sanguinea*, De Geer.

Distribution. Oriental and Malayan Regions.

Body of moderate size, somewhat slender; head (including eyes) about equal in width to base of mesonotum, front convexly somewhat flatly produced, shorter than vertex, their lateral margins discontinuous; pronotum as long as head, its lateral margins a little convex, the posterior lateral angles sometimes distinctly produced; mesonotum (including cruciform elevation) scarcely longer than pronotum; abdomen longer than space between apex of head and base of cruciform elevation, the tympana completely exposed, tympanal coverings absent; opercula in male small and transverse; anterior femora strongly spined beneath; face more or less longitudinally sulcate; tegmina more or less opaque, apical areas usually eight, sometimes nine or ten in number; wings semi-opaque or semi-hyaline; apical areas six.

1662. **Huechys sanguinea**, *De Geer* (Cicada), *Mém.* iii, p. 221, t. xxxiii, f. 17 (1773); *Amy. & Serv.* (Huechys) *Hém.* p. 465 (1843); *Dist. Mon. Orient. Cicad.* p. 111, t. iii, f. 2, *a*, *b* (1892).
Tettigonia sanguinolenta, *Fabr. Syst. Ent.* p. 681. 15 (1775); *Oliv.* (Cicada) *Enc. Méth.* v, p. 756 (1790).
Var. a. philæmata, *Fabr.* (Tettigonia) *Syst. Rhyng.* p. 42. 47 (1803); *Dist. Mon. Orient. Cicad.* p. 112, t. iii, f. 2, *a*, *b* (1892).
Stoll, Cig. fig. 62.
Var. b. *Dist. Mon. Orient. Cicad.* p. 112 (1892).
Var. c. testacea, *Fabr.* (Tettigonia) *Mant. Ins.* ii, p. 267. 23 (1787); *Dist. Mon. Orient. Cicad.* p. 112 (1892).
Stoll, Cig. f. 41 *c*.

Body and legs black; front and face to head, two large spots to mesonotum (sometimes fused and covering the whole disk) and

Fig. 69.—*Huechys sanguinea.*

the abdomen sanguineous, base of abdomen narrowly black; tegmina black, opaque; wings shining fuscous, sometimes almost black, interior of anal area always paler; rostrum passing the intermediate coxæ.

Var. *a. philæmata*, Fabr. Differs from the typical form of the species in having the tegmina fuscous, not black, and by the wings being paler fuscous and more hyaline.

Var. *b.* Tegmina black, with greyish-white streaks in the apical areas and sometimes in ulnar areas; wings blackish with greyish-white streaks.

Var. *c. testacea*, Fabr. Mesonotum unspotted, uniformly black; tegmina more or less streaked with greyish-white.

Length excl. tegm., ♂ & ♀, 17 to 25; exp. tegm. 43 to 65 millim.

Hab. Sikhim (*Ind. Mus.*). Assam; Brahmaputra (*Chennell*). Calcutta (*Stockh. & Ind. Muss.*). Burma; Rangoon; Kakhien Hills (*Fea*). Tennasserim; Thagata (*Fea*); Myitta (*Doherty*).—Malay Peninsula. Sumatra. Borneo. Timor Laut. China.

"In the Malay Peninsula this species is diurnal and flies about among bushes in the open at midday" (Annandale, Proc. Zool. Soc. 1900, p. 862).

1663. **Huechys thoracica**, *Dist. J. A. S. Beng.* xlviii, p. 39, t. ii, f. 3 (1879); *id. Mon. Orient. Cicad.* p. 115, t. iii, f. 3, *a*, *b* (1892).

Black; front and face to head, a central hourglass-shaped fascia to pronotum, a central and two lateral spots to mesonotum, abdomen, and sternum sanguineous; margins of front, a broad central fascia to face, and some sternal spots black; tegmina pale fuscous and semi-opaque; wings semi-hyaline, slightly tinged with fuscous; the venation dark fuscous; rostrum just passing the intermediate coxæ.

Length excl. tegm., ♀, 17 to 20; exp. tegm. 39 to 50 millim.

Hab. Burma; Karen Hills and Ruby Mines (*Doherty*). Tennasserim (*Limborg*); Myitta (*Doherty*).

1664. **Huechys hæmatica**, *Dist. Ann. Mus. Civ. Gen.* xxvi, p. 454, t. iv, f. 5, *a*, *b* (1888); *id. Mon. Orient. Cicad.* p. 116, t. xiv, f. 4, *a*, *b* (1892).

Body above and beneath sanguineous; pronotum with a large oblique black spot on each lateral area; eyes dull ochraceous; legs castaneous; tegmina pale greyish-brown, with darker suffusions along the veins, base narrowly sanguineous; wings pale bluish-grey, with darker suffusions along the veins, bases narrowly sanguineous; rostrum reaching the posterior coxæ.

Length excl. tegm., ♀, 20; exp. tegm. 45 millim.

Hab. Tenasserim; Mt. Mooleyit (*Fea*).

Genus SCIEROPTERA.

Scieroptera, *Stål, Hem. Afr.* iv, p. 4 (1866); *id. Berl. ent. Zeit.* x, p. 169 (1866); *Dist. Mon. Orient. Cicad.* p. 117 (1892).

Type, *S. splendidula*, Fabr.

Distribution. Oriental and Malayan Regions.

Head (including eyes) a little broader than base of mesonotum, front subconically, flatly produced, shorter than vertex, the lateral margins of both discontinuous; pronotum longer than head, its lateral margins slightly convexly oblique, the posterior lateral angles distinctly produced; mesonotum (including cruciform elevation) not longer than pronotum; abdomen longer than space between apex of head and base of cruciform elevation; tympana entirely exposed, tympanal coverings altogether absent; opercula in male small and transverse; anterior femora strongly spined beneath; face not longitudinally sulcate; tegmina more or less opaque, apical areas eight, basal cell longer than broad; wings hyaline, apical areas six.

1665. **Scieroptera splendidula**, *Fabr.* (Tettigonia) *Syst. Ent.* p. 681 (1775); *Oliv.* (Cicada) *Enc. Méth.* v, p. 756 (1790); *Stål* (Scieroptera), *Berl. ent. Zeit.* x, p. 169 (1866); *Dist. Mon. Orient. Cicad.* p. 117, t. xiv, f. 5, *a*, *b* (1892).

Var. a. cuprea, *Walk.* (Huechys) *J. Linn. Soc., Zool.* x, p. 95 (1868).

Var. b. trabeata, *Germ.* (Cicada) *Thon's Arch.* ii, 2, p. 39 (1830).

Var. c. *Dist. Mon. Orient. Cicad.* p. 117 (1892).

Var. d. *Dist. tom. cit.* p. 118.

Black; margins and a central fascia to pronotum and mesonotum ochraceous; cruciform elevation ochraceous, its central area black; lateral margins of sternum ochraceous; abdomen and femora (excluding apices) reddish-ochraceous; abdomen frequently with a central, dorsal, longitudinal, black macular fascia; tegmina piceous or very dark fuscous; wings hyaline, very slightly tinged with ochraceous.

Fig. 70.—*Scieroptera splendidula.*

Var. *a. cuprea*, Walk. Costal membrane of tegmina ochraceous.

Var. *b. trabeata*, Germ. Tegmina paler than in var. *a*; ground-colour of pronotum purplish in place of black; front of head marked with purplish.

Var. *c.* Tegmina as in var. *a*, but legs and face uniformly ochraceous.

Var. *d.* As in var. *c*, but the tibiæ and tarsi blackish; head with the margins of front and the lateral areas of vertex ochraceous.

Length excl. tegm. 12 to 20; exp. tegm. 32 to 53 millim.

Hab. Sikhim. Assam; Margherita (*Doherty*); Khási Hills (*Coll. Dist.*). Burma; Momeit (*Doherty*). Tenasserim (*Coll. Dist.*).—Java. Borneo. Celebes. China.

A very variable species; but the variation does not constitute local races; the only limitation, according to present knowledge, being the restriction of the form *trabeata* to Java, but this is probably not constant.

1666. **Scieroptera crocea**, *Guér.* (Cicada) *Voy. 'Favorite,'* v, p. 159, t. xlv, f. 3 (1829); *id. Voy. 'Coquille,' Zool.* ii, p. 182 (1830); *Stål* (Scieroptera), *Berl. ent. Zeit.* x, p. 169 (1866); *Dist. Mon. Orient. Cicad.* p. 118, t. xiv, f. 6, *a, b* (1892).
Var. a. *Dist. Mon. Orient. Cicad.* p. 118 (1892).

Closely allied to *S. splendidula*, of which it may ultimately be proved to be but another variety, and from which it differs by the tegmina being semi-hyaline and very pale ochraceous, with the venation darker ochraceous; face black, with the margins ochraceous.

Var. *a*. Face altogether pale castaneous; legs ochraceous.

Length excl. tegm., ♂ & ♀, 15 to 20; exp. tegm. 40 to 57 millim.

Hab. Bombay (*Leith*).—Sumatra. Java. Borneo.

1667. **Scieroptera fumigata**, *Stål* (Huechys), *Öfv. Vet.-Ak. Förh.* 1854, p. 244; *id.* (Scieroptera) *Berl. ent. Zeit.* x, p. 169 (1866); *Dist. Mon. Orient. Cicad.* p. 118, t. xiv, f. 7 (1892).

Black; two central lines to pronotum flavescent; margins of pronotum and mesonotum, abdomen and femora testaceous, the abdomen with a central, longitudinal, black dorsal fascia; tibiæ and tarsi piceous; tegmina fuscous or vinaceous-brown, the venation and costal membrane dull ochraceous; wings semi-hyaline, the venation ochraceous.

Length excl. tegm., ♂ & ♀, 12 to 19; exp. tegm. 28 to 43 millim.

Hab. North Bengal (*Coll. Dist.*). Assam; Margherita (*Doherty*).

Division *CARINETARIA*.

Carinetaria, *Dist. A. M. N. H.* (7) xv, p. 483 (1905).

In this division the pronotum is distinctly narrowed anteriorly, never longer than the mesonotum, sometimes much shorter; the lateral pronotal margins are oblique, not ampliate; the body is more or less robust, narrowed towards head and apex of abdomen; abdomen sometimes very short; tegmina and wings hyaline, the first in a few cases semi-opaque, but usually clear and frequently unspotted.

Only one genus of this division is found in British India, the other genera belong to the Neotropical and Ethiopian Regions.

Genus **KARENIA**.

Karenia, *Dist. Ann. Mus. Civ. Gen.* xxvi, p. 457 (1888); *id. Mon. Orient. Cicad.* p. 126, 1892.

Type, *K. ravida*, Dist.

Distribution. Burma and China.

Head depressed, rounded, a little narrower than anterior margin

of pronotum, including eyes considerably narrower than base of mesonotum, front broad, about as long as vertex at area of ocelli; pronotum more than twice as broad as long, longer than head, but much shorter than mesonotum, the lateral margins ampliated and obscurely toothed; mesonotum very large, the cruciform elevation elongated; abdomen in male short and robust, not longer than pro- and mesonota together; tympanal coverings entirely absent; opercula in male small and widely separated; anterior femora strongly toothed beneath; tegmina and wings hyaline, the first with their greatest breadth more than one-third their length, apical areas eight, and somewhat short; wings with six apical areas.

1668. **Karenia ravida**, *Dist. Ann. Mus. Civ. Gen.* xxvi, p. 458 (1888); *id. Mon. Orient. Cicad.* p. 126, t. xii, f. 6, *a*, *b* (1892).

Head, pronotum, and mesonotum olivaceous; head with a curved spot at anterior angles of vertex, area of ocelli, and a linear spot on each side of same piceous; pronotum with the

Fig. 71.—*Karenia ravida.*

centres of anterior and inner posterior margins, the incisures, two central fasciæ not reaching anterior margin, a short central line at anterior margin, a spot on each anterior lateral margin, and two spots on posterior margin piceous or black; mesonotum with two central obconical spots, between which is an indistinct central longitudinal line, a somewhat effaced broad fascia on each lateral area, two spots in front of cruciform elevation, and the posterior margin of same piceous or black abdomen above olivaceous, much shaded with piceous; body beneath and legs olivaceous; a spot at base of each antenna, apices of anterior femora, tibiæ (more or less), anterior and intermediate tarsi, and apex of abdomen piceous or black; tegmina and wings hyaline, venation brownish-olivaceous, the first with transverse veins at bases of second, third, fifth, seventh, and eighth apical areas infuscated, and a marginal series of fuscous spots at apices of longitudinal veins to apical areas.

Length excl. tegm., ♂, 27; exp. tegm. 87 millim.

Hab. Burma; Kakhien Hills (*Fea*).

Division *TIBICINARIA*.

Tibicinaria, *Dist. A. M. N. H.* (7) xvi, p. 22 (1905).

In this division the abdomen is more or less cylindrical and attenuated posteriorly; anal appendages usually very prolonged and prominent. their lower plate as a rule more longly porrect than their upper one; pronotum generally more or less distinctly narrowed anteriorly *; tegmina somewhat talc-like and obscurely wrinkled, their greatest breadth always more than one-third of their length, both tegmina and wings always prominently sanguineous or reddish-ochraceous at base.

The genera in this division are of a very homogeneous character, possess a common facies, and are widely distributed. Four genera are at present included in the *Tibicinaria*, only one of which is found in British India.

Genus **PAHARIA**.

Paharia, *Dist. A. M. N. H.* (7) xvi, p. 25 (1905).

Type, *P. lacteipennis*, Walk.

Distribution. At present known only from the northern districts of India.

Head moderately narrow, its breadth (including eyes) narrower than base of mesonotum, and about equal to its length including cruciform elevation, front prominent, as long as vertex; pronotum much longer than head, convex, laterally depressed, obliquely narrowed anteriorly, its posterior angles strongly lobately produced; mesonotum strongly deflected on each side; abdomen in female about as long as space between apex of head and base of cruciform elevation; tympana completely exposed, tympanal coverings entirely absent; abdomen beneath with the lateral margins strongly recurved and very prominent; anterior femora robust and very strongly spined beneath; posterior tibiæ spined on each side for about half their length; rostrum reaching the intermediate coxæ; tegmina and wings talc-like in type, obscurely wrinkled, the first broad, with the apical areas somewhat short and eight in number, the basal cell about twice as long as broad, narrower at apex than at base; wings with six apical areas.

1669. **Paharia lacteipennis**, *Walk.* (Cephaloxys) *List Hom.* i. p. 237 (1850); *Atkins.* (Mogannia) *J. A. S. Beng.* liii, p. 233 (1885); *Dist.* (Tibicen) *Mon. Orient. Cicad.* p. 129, t. x, f. 5, *a*, *b*, t. xii, f. 10, *a*, *b* (1892).

♀. Head piceous, thickly greyishly pilose, basal marginal areas of front and a small spot on each vertical margin ochraceous;

* Except in the Nearctic species *Tibicina septemdecim*.

pronotum ochraceous, thickly greyishly pilose, the oblique incisures, two small central basal spots, and inner basal margin black; mesonotum ochraceous, with four obconical spots (the two innermost smallest), a central lanceolate fascia, and two small spots in front of cruciform elevation black; abdomen black, the posterior segmental margins regularly, shortly, greyishly pilose; head beneath, sternum, and legs ochraceous, greyishly pilose, legs less pilose; abdomen beneath with a somewhat pale olivaceous tinge,

Fig. 72.—*Paharia lacteipennis.*

the lateral margins ochraceous with black spots; tegmina and wings lacteous, semi-opaque, talc-like, the venation mostly fuscous; extreme base and costal membrane of tegmina ochraceous.

Length excl. tegm., ♀, 33; exp. tegm. 96 millim.

Hab. "North India" (*Stevens, Brit. Mus.*).

This species is at present known only by the unique female type.

1670. **Paharia casyapæ**, *Dist.* (Tibicen) *A. M. N. H.* (6) i, p. 374 (1888); *id. Mon. Orient. Cicad.* p. 128, t. xiv, f. 20, *a, b* (1892).

♀. Head black, margins of front, the ocelli, a small central basal spot, and the anterior margins of vertex testaceous-red; pronotum testaceous-red, the margins and two central longitudinal lines black; mesonotum black, two central "antler"-shaped fasciæ, the lateral margins, and the basal cruciform elevation (excluding anterior angles) testaceous-red; abdomen above black; body beneath black, somewhat greyishly pilose; face red, its central longitudinal sulcation black; rostrum black, its base red; legs red, the femora streaked beneath with black; tegmina and wings hyaline, talc-like, finely wrinkled, their bases narrowly testaceous-red margined with piceous, venation piceous, costal membrane of tegmina ochraceous, piceous near base; rostrum reaching the intermediate coxæ.

Length excl. tegm., ♀, 35; exp. tegm. 90 millim.

Hab. Kashmir Valley (*Leech*).

1671. **Paharia reticulata**, *Dist.* (Tibicen) *A. M. N. H.* (6) i, p. 374 (1888); *id. Mon. Orient. Cicad.* p. 128, t. xiv, f. 21, *a*, *b* (1892).

♀. Head black, apex of front, anterior lateral margins of vertex, and a narrow central longitudinal line testaceous-red; pronotum black, the margins and two large contiguous spots on each lateral area testaceous-red; mesonotum black, the margins, the cruciform elevation, and two irregular subconical spots on anterior margin testaceous-red; abdomen black; body beneath and legs black, somewhat greyishly pilose; margins of face, under surfaces and apices of femora, tibiæ and tarsi (excluding bases and extreme apices), spots and other markings to sternum, and abdominal segmental margins testaceous-red; tegmina and wings hyaline, talc-like, finely wrinkled, their bases narrowly testaceous-red margined with piceous; costal membrane to tegmina reddish-ochraceous; rostrum reaching the intermediate coxæ.

Length excl. tegm., ♀, 29; exp. tegm. 70 millim.

Hab. Panjab; Gilgit (*Coll. Dist.*).

Division *TAPHURARIA**.

Taphuraria, *Dist. A. M. N. H.* (7) xvi, p. 25 (1905).

Eyes projecting beyond the anterior angles of the pronotum; pronotum subquadrate, not distinctly narrowed anteriorly as it is, with few exceptions, in the *Tibicinaria*; abdomen about as long as space between apex of head and base of cruciform elevation †; a more or less distinct posterior metasternal process visible in males between or at the base of the opercula.

This division includes a large number of genera very widely distributed; perhaps, but not certainly, absent from the Nearctic Region.

Synopsis of Genera.

A. Wings with six apical areas.
  a. Tegmina with transverse vein at base of second apical area nearly vertical.
    a. Front of head a little shorter than vertex, their margins continuous; the front not produced, and about, or nearly, twice broader than long .... ABROMA, p. 165.
    a'. Front of head about as long or a little shorter than vertex, their margins discontinuous and almost at right angles to each other; the front prominent, not nearly twice as broad as long.... LEMURIANA, p. 166.
B. Wings with five apical areas .... PANKA, p. 168.

* Founded on the Neotropical genus *Taphura*.

† Except in the Ethiopian genus *Malagasia*, and in *Kanakia*, at present represented by a species from New Caledonia.

Genus ABROMA.

Tibicen, subgen. Abroma, *Stål, Hem. Afr.* iv, p. 27 (1866).
Abroma, *Karsch, Berl. ent. Zeit.* xxxv, p. 111 (1890).

Type, *A. guerini*, Sign., from Mauritius.

Distribution. Neotropical, Ethiopian, Oriental, and Malayan Regions, and found in New Caledonia.

Head (including eyes) wider than base of mesonotum, the eyes projecting beyond the anterior angles of the pronotum, front of head a little shorter than vertex, the margins of both more or less continuous, the front not prominently produced and about, or nearly, twice broader than long, ocelli little more apart from eyes than from each other; pronotum about as long as head, the lateral margins not ampliated, nearly straight, the posterior angles moderately dilated; mesonotum (including cruciform elevation) about as long as head and pronotum together; abdomen moderately robust, the tympana completely exposed; opercula in male short, oblique, passing base of abdomen; rostrum passing the intermediate coxæ; tegmina and wings hyaline, the first about three times as long as broad, with eight apical areas, and with the transverse vein at base of second apical area nearly vertical; wings with six apical areas.

1672. **Abroma maculicollis**, *Guér.* (Cicada) *Voy. 'Coquille,' Zool.* p. 183 (1830); *Atkins. J. A. S. Beng.* liii, p. 230 (1885); *Dist.* (Tibicen) *Mon. Orient. Cicad.* p. 131, t. xiv, f. 23, *a, b* (1892).

Body fuscous-brown or castaneous; head with the margins of front and vertex, a central hourglass-shaped fascia to pronotum, four obconical spots to mesonotum (the central pair shortest)

Fig. 73.—*Abroma maculicollis.*

fuscous or dark castaneous; body beneath and legs pale castaneous, the face darker, and the anterior marginal area to eyes greyishly tomentose; tegmina and wings pale hyaline, the former with the costal membrane pale castaneous; opercula in male small and lobately directed inwards; the rostrum passes the intermediate coxæ.

Length excl. tegm., ♂ & ♀, 20; exp. tegm. 55 to 56 millim.

Hab. Bengal (*fide Guérin*). Ceylon (*Green*).—Malay Peninsula; Perak (*Doherty*). Borneo; Kina Balu (*Whitehead*).

1673. **Abroma bengalensis**, sp. n.

♂. Body brownish-ochraeeous; head with the apex of front, area of ocelli, and a spot at each anterior angle of vertex, pronotum with a central longitudinal fascia (widened posteriorly) and the incisures, and the mesonotum with four obeonical spots (of which the two eentral ones are shortest) castaneous; posterior margins of eyes and posterior margin of pronotum piceous; erueiform elevation stramineous; abdomen above with its lateral areas piceous, a large basal spot on each lateral area, posterior margin of apical segment, and the anal appendage stramineous; head beneath and sternum longly greyishly pilose, abdomen more shortly pilose; tegmina and wings hyaline, the venation fuscous-brown; tegmina with the costal membrane brownish-ochraceous; head with the front much broader than long, its width about equal to the length of eaeh lateral margin of vertex; tegmina long, about three times longer than their greatest width; rostrum just passing the intermediate coxæ; lateral areas of the faee oblique, strongly transversely striate.

Length excl. tegm., ♂, 17; exp. tegm. 58 millim.

Hab. Bengal; Kurseong (*Coll. Dist.*).

1674. **Abroma nubifurca**, *Walk.* (Cicada) *List Hom. Suppl.* p. 28 (1858); *Stål* (Tibicen), *Öfv. Vet.-Ak. Förh.* 1862, p. 485; *Dist. A. M. N. H.* (6) ix, p. 325 (1892).

Cicada apicalis, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 131, t. v, f. 1 (1891).

Head and thorax above eastaneous-brown, abdomen pieeous, both greyishly pilose; pronotum with a central longitudinal fascia and the lateral and posterior margins obseurely ochraceous; mesonotum with two small obseure, eentral, ochraceously-margined spots; body beneath pale fuseous-brown, legs and opereula pale oehraeeous, the whole greyishly pilose; tegmina and wings pale hyaline, the venation fuscous; tegmina with the eostal membrane pale ochraeeous, a spot at apex of radial area, transverse veins at bases of the first and second apieal areas, and an apical spot fuseous.

Length exel. tegm., ♂ & ♀, 12 to 14; exp. tegm. 32 to 40 millim.

Hab. Ceylon; Kandy (*Green*).

Genus LEMURIANA.

Lemuriana, *Dist. A. M. N. H.* (7) xvi, p. 32 (1905).

Type, *L. apicalis*, Germ.

Distribution. Ethiopian and Oriental Regions.

Head (including eyes) broader than base of mesonotum; head with the front prominent, not twice as broad as long, about as long or a little shorter than vertex, its margins and those of vertex discontinuous, eyes projecting beyond the anterior angles of pronotum, which is about as long as head, its lateral margins sinuate, its posterior angles moderately ampliate; mesonotum (including cruciform elevation) nearly as long as head and pronotum together; abdomen about as long as space between apex of head and base of cruciform elevation; tympana entirely exposed; opercula in male short, narrow, transverse; posterior metasternal process distinct, in male produced between the inner angles of the opercula; anterior femora strongly spined beneath; tegmina and wings hyaline; tegmina with the two upper ulnar areas as long as the remaining ulnar areas, apical areas eight; wings with six apical areas.

1675. **Lemuriana apicalis**, *Germ.* (Cicada) *Thon's Arch.* ii, 2, p. 44 (1830); *Silb. Rev. Ent.* ii, p. 63 (1864); *Stål* (Tibicen), *Ann. Soc. Ent. Fr.* 1861, p. 618; *Dist. Mon. Orient. Cicad.* p. 131, t. xii, f. 15, *a, b* (1892).
Cicada semicincta, *Walk. List Hom.* i, p. 142 (1850).

Head above black, sometimes with a castaneous spot on front; pronotum castaneous, with the margins and a central hourglass-shaped fascia black; mesonotum castaneous, with three obconical black spots, the central spot shortest and bifid; abdomen black, with a greyish-white tomentose spot on the lateral margins of both the first and second abdominal segments, and a similarly coloured basal margin to the sixth and sometimes also to the fifth segment; body beneath black; the legs pale ochraceous, the femora more or less castaneous above; lateral areas of the sternum ochraceous and greyishly tomentose; margins of the opercula and lateral areas of the abdomen pale castaneous. (In some specimens the mesonotum, opercula, and abdomen beneath are wholly black.) Tegmina and wings hyaline, venation mostly fuscous; tegmina with the costal membrane ochraceous and with an apical fuscous spot.

Fig. 74.—*Lemuriana apicalis.*

Length excl. tegm., ♂, 17; exp. tegm. 48 millim.

Hab. Mussooree (*Mackinnon*). Bombay (*Ind. Mus.*); Karwar (*Coll. Dist.*).

Genus PANKA.

Panka, *Dist. A. M. N. H.* (7) xvi, p. 34 (1905).

Type, *P. simulata*, Dist.

Distribution. Ethiopian and Oriental Regions.

Head (including eyes) about as wide or a little wider than base of mesonotum, its length not equal to breadth between the inner margins of eyes; pronotum longer than head, its lateral margins nearly straight, its posterior lateral angles subdentately produced; abdomen in female a little longer than space between apex of head and base of cruciform elevation; anterior femora strongly spined beneath; tegmina and wings hyaline; tegmina with eight, wings with five apical areas.

1676. **Panka simulata,** *Dist. A. M. N. H.* (7) xvi, p. 34 (1905).
Tibicen nubifurca, *Dist.* (excl. syn.) *Mon. Orient. Cicad.* p. 131, t. xiv, f. 24, *a*, *b* (1892).

Fig. 75.—*Panka simulata.*

Closely resembling *Abroma nubifurca*, Walk. (*ante*, p. 166), in fact almost indistinguishable from that species save by the structural character of the venation to the wings, which possess only five apical areas.

Length excl. tegm., ♀, 11 to 13; exp. tegm. 31 to 38 millim.

Hab. Ceylon; Matate (*Green*).

This simulation or resemblance between species of different genera is in the Cicadidæ not confined to the above species. In South Africa three species of very distinct genera are inseparable except for the structural generic characters.

Division *PARNISARIA* *.

Parnisaria, *Dist. A. M. N. H.* (7) xvi, p. 203 (1905).

This is a division or large group of genera allied to the *Taphuraria*, but differing principally by the size and position of the eyes, which do not project, or at least not distinctly so, beyond the anterior angles of the pronotum; the abdomen is usually short, except in a few cases, not longer than the space between the apex of head and base of cruciform elevation.

Only one genus can at present be included in the fauna of British India.

* Founded on the Neotropical genus *Parnisa*.

Genus QUINTILIA.

Tibicen, subgen. Quintilia, *Stål, Hem. Afr.* iv. p. 28 (1866).
Quintilia, *Karsch, Berl. ent. Zeit.* xxxv, p. 111 (1890).

Type, *Q. rufiventris*, Walk., a South African species.
Distribution. Ethiopian and Oriental Regions, also recorded from China.

Head (including eyes) narrower than base of mesonotum, the front not prominently projecting, about as broad as length of lateral margins to vertex, the margins of both more or less continuous, vertex a little longer than front; pronotum about as long as head, posterior angles broadly ampliate; mesonotum (including cruciform elevation) about as long as head and pronotum together; abdomen moderately robust; tympana completely exposed; opercula in male very short and transverse; rostrum passing the intermediate coxæ; tegmina and wings hyaline, sometimes semi-opaque, the first about, or nearly, three times as long as greatest breadth, basal cell usually about twice as long as broad, apical areas eight; wings with six apical areas.

1677. **Quintilia subvitta**, *Walk.* (Cicada) *List Hom.* i, p. 222 (1850); *Atkins. J. A. S. Beng.* liii, p. 230 (1885); *Stål* (Tibicen), *Öfv. Vet.-Ak. Förh.* 1862, p. 485; *Dist. Mon. Orient. Cicad.* p. 129, t. xii, f. 17, *a*, *b* (1892).
Cicada strigosa, *Walk. Ins. Saund., Hom.* p. 19 (1858).

Body above black; head with a small spot on lateral margins of vertex and a central spot at base, pronotum with the anterior and posterior margins, a central longitudinal fascia, the incisures (sometimes the lateral areas), mesonotum with faint outlines of the margins of two central obconical spots, and the apices of the cruciform elevation ochraceous; margins of abdominal segments and basal area of last abdominal segment castaneous; body beneath with the lateral margins of the face, sternal spots, opercula, and disk of abdomen ochraceous; legs black, considerably spotted and streaked with ochraceous; tegmina and wings hyaline, venation mostly fuscous; tegmina with the outer edge of costal membrane and extreme base ochraceous, basal cell, a short fascia crossing apex of radial area and maculately continued to apex of interior ulnar area, transverse veins at bases of apical areas, and a small apical spot piceous; wings with extreme base ochraceous, a fascia crossing bases of apical areas, a spot at anal angle, and base of anal area fuscous.

Fig. 76.—*Quintilia subvitta.*

Length excl. tegm., ♂, 16; exp. tegm. 45 millim.

Hab. Mussooree (*Mackinnon*). N.W. Himalaya (*Coll. Dist.*). Sikhim (*Ind. Mus.*).

Division *CHLOROCYSTARIA* *.

Chlorocystaria, *Dist. A. M. N. H.* (7) xvi, p. 212 (1905).

In this division the abdomen in the males is always more or less inflated or dilated, with a central longitudinal dorsal ridge, and longer than the space between the apex of head and base of cruciform elevation ; the head (including eyes) is a little narrower than base of mesonotum ; tegmina always longer than body, their greatest width only about a third of their length.

Only one genus can at present be included in this fauna.

Genus **KUMANGA**.

Kumanga, *Dist. A. M. N. H.* (7) xvi, p. 215 (1905).

Type, *K. sandaracata*, Dist.

Distribution. Burma.

Head with the front narrow, about as long as broad, including eyes narrower than base of mesonotum ; pronotum narrowed anteriorly ; mesonotum (including cruciform elevation) slightly shorter than head and pronotum together ; abdomen in male longer than the space between apex of head and base of cruciform elevation ; tympana entirely exposed ; opercula completely covering the sonorous cavities and projecting beyond the lateral margins of the abdomen as seen from above ; rostrum reaching the intermediate coxæ ; tegmina and wings hyaline ; tegmina with eight apical areas, seventh and eighth about equally long, basal cell about twice as long as broad ; wings with six apical areas.

1678. **Kumanga sandaracata**, *Dist.* (Bæturia) *Ann. Mus. Civ. Gen.* xxvi, p. 458, t. iv, f. 4 (1888) ; *id. Mon. Orient. Cicad.* p. 151, t. vii, f. 9, *a*, *b* (1892).

Fig. 77.—*Kumanga sandaracata.*

♂. Body above, sternum, and legs pale testaceous ; abdomen beneath ochraceous ; tegmina and wings hyaline, the venation and

* Founded on an Australian genus.

the costal membrane of the first pale testaceous; rostrum reaching the intermediate coxæ.

Length excl. tegm., ♂, 30; exp. tegm. 72 millim.

Hab. Burma; Teinzo (*Fea*).

I have seen only one specimen of this species, which is now contained in the Genoa Museum.

Division *MELAMPSALTARIA*.

Melampsaltaria, *Dist. A. M. N. H.* (7) xvi, p. 269 (1905).

This division is very easily recognised by the distinct venation of the tegmina, in which the upper vein of the lower ulnar area is more or less fused with the lower vein to the radial area, this union being continued for some distance from the apex of the basal cell.

Two genera are found in British India.

Synopsis of Genera.

A. Wings with six apical areas .... MELAMPSALTA, p. 171.
B. Wings with five apical areas .... PAUROPSALTA, p. 174.

Genus **MELAMPSALTA**.

Melampsalta, *Kolenat. Mel. Ent.* vii, p. 27 (1857); *Bull. Soc. Nat. Mosc.* xxx, p. 425 (1857); *Stål, Hem. Afr.* iv, p. 42 (1866); *Karsch, Berl. ent. Zeit.* xxxv, pp. 112 & 123 (1890).

Melampsalta (Mélampsalte), *Amyot, Ann. Soc. Ent. Fr.* 1847, p. 155 [351].

Cicadetta, *Kolenat. Mel. Ent.* vii, p. 19 (1857); *Bull. Soc. Nat. Mosc.* xxx, p. 417 (1825).

Cicadetta (Cigalette), *Amyot, Ann. Soc. Ent. Fr.* 1847, p. 156 [352].

Tettigetta, *Kolenat. Bull. Soc. Nat. Mosc.* xxx, p. 422 (1825).

Tettigetta (Tettigette), *Amyot, Ann. Soc. Ent. Fr.* 1847, p. 156 [352].

Type, *M. musiva*, Germ.

Distribution. Of almost universal distribution, but apparently not found in the Neotropical Region.

Considerable difficulty appertains to the nomenclature of this genus. It was first named by Amyot (scarcely described) *supra*, and takes precedence of the name *Cicadetta* which he used in a succeeding page. Kolenati described the genus, but had previously also described *Cicadetta*, which, if we take Kolenati as the real founder, must have priority. However, I follow Stål, Karsch, and other writers in giving the name *Melampsalta* precedence, as given by Amyot. I have failed to separate *Cicadetta* from *Melampsalta*: if we compare the type of the first, the *Cicada montana*, Scop., with the type of *Melampsalta* (*supra*) a difference appears in the position of emergence of the upper vein of the lower ulnar area; but much as I endeavoured to thus break up a congested genus,

my efforts failed, and the differences became evanescent when a long series of species was examined.

Head about as long as pronotum, the front broad, its margins discontinuous with the lateral margins of the vertex, which is longer than front and is centrally longitudinally sulcate, ocelli rather nearer to eyes than to each other, eyes scarcely projecting beyond the anterior angles of the pronotum; pronotum with the lateral margins almost straight, the posterior angles moderately ampliate; mesonotum (including cruciform elevation) almost as long as head and pronotum together; abdomen a little longer than space between apex of head and base of cruciform elevation; tympana entirely exposed; opercula in male short, not passing base of abdomen; tegmina and wings hyaline; tegmina with the upper vein of lower ulnar area emitted at some distance from base of radial area, apical areas eight, postcostal area moderately broad; wings with six apical areas.

1679. **Melampsalta musiva**, *Germ.* (Cicada) *Thon's Arch.* ii, 2, p. 43 (1830); *Stål* (Melampsalta), *Ann. Soc. Ent. Fr.* 1861, p. 619 *Karsch, Berl. ent. Zeit.* xxxv, p. 123 (1890).
Melampsalta musiva, *var.* caspica, *Kolenat. Bull. Soc. Nat. Mosc.* xxx, p. 425 (1857).
Cicada tamarisca, *Walk. Zoologist,* xxviii, p. 2403 (1870).

Head and mesonotum ochraceous, pronotum tinged with testaceous; head much shaded with black, especially on vertex, margins of front, and in two transverse spots on lateral margins of vertex; pronotum with the margins and a central longitudinal fascia ochraceous, the margins of the latter (ampliated anteriorly and posteriorly) and the inner margins black; mesonotum with four obconical spots (the two central ones short, more or less fused, outwardly incomplete, and connected with a subtriangular spot in front of cruciform elevation) black; centre of cruciform elevation black; abdomen brownish-ochraceous, greenishly pilose, posterior segmental margins ochraceous and with a central series of piceous or black spots; body beneath and legs paler than above; two central fasciæ to face, space between face and eyes, rostrum (excluding base), and shadings to under surface of anterior femora piceous or black; tegmina and wings hyaline, the first with the venation more or less fuscous, the costal membrane pale ochraceous outwardly margined with fuscous; wings with the venation ochraceous.

Length excl. tegm., ♂ & ♀, 20 to 23; exp. tegm. 50 to 57 millim.

Hab. Quetta (*Ind. Mus.*).—South-eastern Palæarctic Region.

1680. **Melampsalta continuata**, *Dist.* (Cicadetta) *A. M. N. H.* (6) i, p. 375 (1888); *id.* (Melampsalta) *Mon. Orient. Cicad.* p. 143, t. xv, f. 9, *a*, *b* (1892).

♀. Head and thorax above dull black, sparingly greyishly

pilose; head with the anterior margin, the ocelli, a central linear longitudinal fascia (widened posteriorly) to pronotum, and the pronotal margins dull ochraceous; mesonotum with two long longitudinal discal fasciæ, the lateral margins, and cruciform elevation (excluding centre) dull ochraceous; abdomen above castaneous-brown, greyishly pilose, the posterior segmental margins paler in hue, their extreme edges ochraceous, and with an obscure, central, narrow, longitudinal black fascia; body beneath and legs reddish-ochraceous; head beneath and discal area of face black; tegmina and wings pale hyaline, their bases narrowly reddish-ochraceous, venation more or less olivaceous; rostrum reaching the intermediate coxæ; face broad and tumid.

Fig. 78.—*Melampsalta continuata.*

Length excl. tegm., ♀, 15 to 18; exp. tegm. 38 to 45 millim.

Hab. Quetta (*Colls. Atkins. & Dist.*).

Apart from its smaller size and different coloration, this species may be distinguished from *M. musiva* by the much shorter upper apical area to tegmina.

1681. **Melampsalta literata,** *Dist.* (Cicadetta) *A. M. N. H.* (6) i, p. 375 (1888); *id.* (Melampsalta) *Mon. Orient. Cicad.* p. 143, t. xv, f. 8, *a, b* (1892).

♀. Head black, with the lateral and anterior margins narrowly ochraceous; pronotum piceous or dull castaneous, the lateral and posterior margins narrowly ochraceous; mesonotum ochraceous, with four obconical black spots (the two innermost small and fused), a large spot in front of cruciform elevation and the centre of same black; abdomen above dull black, the posterior segmental margins narrowly and obscurely dull reddish; body beneath ochraceous, sternum much shaded with dull black; face black, with an anterior triangular spot and the lateral margins ochraceous; abdomen with a central longitudinal series of black spots; legs ochraceous, femora and tibiæ streaked with piceous; tegmina and wings hyaline, the venation olivaceous or fuscous; rostrum not extending beyond the intermediate coxæ.

Fig. 79.—*Melampsalta literata.*

Length excl. tegm., ♀, 12; exp. tegm. 37 millim.

Hab. Kashmir Valley, 6300 feet (*Leech, Coll. Dist.*).

Genus **PAUROPSALTA.**

Pauropsalta, *God. & Frogg. Proc. Linn. Soc. N. S. Wales,* 1904, p. 615.

Type, *P. mneme,* Walk., an Australian species.

Distribution. Probably widely distributed in the Eastern Hemisphere, and, according to present knowledge, most largely represented in the Australasian Region.

This genus is closely allied to *Melampsalta,* from which it has very properly been separated by Goding and Froggatt by the venation of the wings, which possess only five, instead of six, apical areas.

1682. **Pauropsalta exequata,** *Dist.* (Melampsalta) *Mon. Orient. Cicad.* p. 144, t. xv, f. 11, *a, b* (1892).

♀. Body above dull ochraceous and finely pilose; head (excluding lateral margins of vertex and a spot at base) piceous; pronotum with a small central dark spot at base, and with a central incised line which does not reach the anterior margin; mesonotum with a large obconical black spot on each lateral area and two very small spots in front of cruciform elevation; abdomen with the base narrowly fuscous, and with two more or less distinct discal longitudinal macular fuscous fasciæ; body beneath and legs dull ochraceous, with a broad fuscous fascia extending from face to apex of abdomen; face fuscous, with the lateral margins ochraceous; apices of the femora, tibiæ, and tarsi fuscous; tegmina and wings hyaline, the venation fuscous or ochraceous.

Fig. 80.—*Pauropsalta exequata.*

Length excl. tegm., ♀, 14; exp. tegm. 37 millim.

Hab. Assam: Nága Hills (*Doherty*).

Family FULGORIDÆ.

Fulgoridæ, *Leach, Edin. Ency.* ix (1817); *Westw. Mod. Class. Ins.* ii, p. 427 (1840); *Fieb. Verh. z.-b. Ges. Wien*, xvi, p. 497 (1866); *Atkins. J. A. S. Beng.* liv, p. 127 (1885); *Melich. Hom. Faun. Ceylon*, p. 10 (1903); *Hansen, Entomologist*, 1903, p. 93.
Fulgorellæ, *Latr. Gen.* iii. p. 163 (1807); *Spin. Ann. Soc. Ent. Fr.* 1839, pp. 133 & 202.
Fulgorina, *Burm. Handb. Ent.* ii, 1, pp. 102 & 144 (1835).
Fulgorida, *Stål, Hem. Afr.* iv, p. 128 (1866).

Ocelli two, rarely three or none, one on each gena, third (when present) placed on apex of front; genæ reflexed, very often separated from the front by a ridge; tegmina at base with a tegula which is hidden, but seldom absent; anterior coxæ inserted near the sides of the body, very often elongate, posterior pair transverse, contiguous, extending to the lateral margins of the body.

The above characters were those relied upon by Stål. Hansen, who microscopically studied the family, or at least some representatives of it, after alluding to the two great divisions of the Fulgoridæ, in which the subfamily *Delphacinæ* is distinguished from the other subfamilies by the possession of a mobile spur at the apex of the posterior tibiæ (as pointed out by Stål), also discovered that the sensory organs on the second peduncular segment or joint of the antennæ are furnished with bristles in the *Delphacinæ*, but in the *Fulgorinæ* with lamellar lobes ("blades"), which are sometimes feebly, but generally very well developed.

Hansen is dissatisfied with Stål's division of subfamilies as here, and usually by other workers, followed; but as his criticisms are based on minute and microscopical characters, not yet fully elucidated, and difficult of apprehension save by advanced morphological students, we must await a fuller enunciation of his system before attempting to apply it to a purely faunistic publication like the present one. The value of Hansen's work is undoubted, but its application at present, owing to its incomplete character, is impossible. We therefore follow Stål in his arrangement of subfamilies, a matter of considerable difficulty as they are ill-defined.

Synopsis of Subfamilies.

I. Anal area of wings reticulated, the ridge separating the front from the genæ continued on the sides of the clypeus...... *Fulgorinæ.*

II. Anal area of wings very rarely reticulate, when so, the clypeus convex without lateral ridges.

A. Posterior tibiæ without a mobile spur at apex.

a. Face broad, transverse, or almost equally broad as long, amplified on both sides in a distinct angle; an-

terior legs compressed, more or less dilated; anal area of wings sometimes reticulated . . . . *Eurybrachydinæ.*

a′. Face not laterally angulate; legs very often simple; anal area of wings never reticulate.

b. Clavus very rarely granulate, acuminate at apex, rarely somewhat obtusely but distinctly closed, two veins remote or very remote from the apex, sometimes behind middle of clavus united in one; costa very rarely dilated; tegmina sometimes abbreviated or connate with clavus and corium.

c. Claval vein not reaching apex, united with commissural margin near apex; tegmina sometimes abbreviated, or connate with clavus and corium, when so, the lateral margins of the clypeus are carinate.

d. Face without an apical ocellus; lateral margins of the clypeus always carinate or acute . . . . *Dictyopharinæ.*

d′. Usually three ocelli, one of which is situate on the apex of the front; frontal ocellus very rarely wanting, and if so, the sides of the clypeus are convex and not carinate . *Cixiinæ.*

c′. Claval vein continued to the apex itself, or united with the claval suture near apex; tegmina sometimes abbreviated, or connate with clavus and corium, when so, the lateral margins of the clypeus are not carinate.

e. Head narrower than the thorax; sides of the clypeus carinate; last joint of rostrum elongate; thorax angularly emarginate at base; tegmina ampliated inwardly behind the clavus; posterior tarsi with the first joint elongate . . . . *Achilinæ.*

e′. Head narrower than the thorax; sides of clypeus without a ridge or with an obtuse ridge;

thorax very often angularly emarginate at the base, very rarely roundly sinuate, tricarinate; lateral ridges diverging, very often reaching the base; commissural margin of tegmina straight or rounded behind the clavus; costa sometimes dilated, costal membrane usually transversely veined; first joint of posterior tarsi elongate . . . . *Tropiduchinæ.*

e^2. Head very often narrower than the thorax; sides of clypeus sometimes carinate; last joint of rostrum short or very short; thorax posteriorly angularly emarginate, ecarinate, or furnished with an obsolete ridge; costa simple; posterior tibiæ very often unarmed, rarely spinose; first joint of posterior tarsi elongate . . . . *Derbinæ.*

e^3. Head narrower than thorax; sides of clypeus carinate; rostrum short, stout, last joint very short; thorax truncate at base, carinate or tuberculate on disk; first joint of posterior tarsi robust, only moderately long . . . . . . *Lophopinæ.*

e^4 Head not or only a little narrower than the thorax; clypeus very often convex, lateral margins very rarely furnished with a ridge; thorax truncate at base, rarely broadly roundly-sinuate, without a median ridge or with only an obsolete one; mesonotum short, rarely twice longer than pronotum; tegmina coriaceous or subcorneous, rarely vitreous, very rarely flat, more or less convex, sometimes very much abbreviated; first joint of posterior tarsi short, or moderately short, very rarely elongate . . . . *Issinæ.*

c'. Head broad or very broad, sometimes somewhat narrower than the thorax; sides of clypeus very often without a ridge; thorax posteriorly rounded, sinuate, without ridges, or furnished only with an obsolete median ridge; mesonotum very large, long; tegmina flat, ample, or very ample; costa dilated; costal membrane transversely veined or reticulate; posterior tibiæ spinose; first joint of posterior tarsi short, or somewhat short .... *Ricaniinæ.*

b'. Clavus granulate, apex sometimes subacute and closed, sometimes very obtuse and broadly open, with two veins separated through the entire length or united in one near apex; costa dilated, costal membrane transversely veined; claval suture distinct .... *Flatinæ.*

B. Posterior tibiæ with a mobile spur at apex. *Delphacinæ.*

Subfamily I. FULGORINÆ.

Fulgorides, *Amy. & Serv. Hém.* p. 488 (1843).
Fulgorida, *Stål, Hem. Afr.* iv, p. 129 (1866); *id. Stett. ent. Zeit.* xxxi, pp. 255 & 282 (1870).
Fulgorina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 740.

As pointed out in the synopsis, this subfamily may be recognized by having the anal area of the wings reticulated, and the ridge separating the front from the genæ continued on the sides of the clypeus.

Division *LATERNARIARIA**.

This division contains those genera whose species possess a strong porrect cephalic process or anterior prolongation of the head, often as long as the remaining portion of the body, but sometimes shorter than the abdomen.

The purpose and structure of this process has occasioned much attention and speculation. It was at one time considered to have luminous properties, a conclusion promulgated by the well-known Neotropical traveller and naturalist, Madame Merian, and afterwards supported by Wesmael and Spinola. The evidence to the contrary is, however, culminative and conclusive. In a paper

* Founded on the Neotropical genus *Laternaria*, Fabr.

"On a probable Explanation of an Unverified Observation relative to the Family Fulgoridæ" (Tr. Ent. Soc. 1895, pp. 429 *et seq.*), I have endeavoured to reconcile these contrary statements of trustworthy observers by the suggestion of the sometime and infrequent presence of parasite and luminous micro-organisms, as have been found to have caused the luminosity of Midges (Chironomidæ) and *Talitrus*, a genus of crustacea (Amphipoda).

Another purpose of this cephalic process has been predicated by Mr. Annandale (Proc. Zool. Soc. 1900, p. 867) as a method of propulsion, and, to use his words, "if the tip of the nose and the dorsal surface of the abdomen were pressed together between the finger and thumb and then suddenly released, the insect would not fall straight to the ground, but would be propelled for some distance through the air before doing so; just as would be the case if a piece of whalebone were treated in like manner." This has since been disputed by Mr. Fletcher ('Entomologist,' 1901, p. 50).

Synopsis of Genera.

A. Genæ before eyes rounded or roundly subtruncate; apex of face profoundly sinuate; mesonotum not centrally carinate; cephalic process straight .... PYROPS, p. 179.

B. Genæ before eyes truncate; apex of face only moderately or slightly sinuate; mesonotum centrally carinate; cephalic process more or less curved.

a. Face not laterally rounded near apex; tegmina always nearly completely, or with more than apical third, furnished with transverse small veins or veinlets.

a. Cephalic process gradually, not suddenly, narrowed from a little in front of eyes; tegmina moderately broad, their greatest width more than a third of their length, their apical margins more or less convexly rounded .... FULGORA, p. 182.

b. Cephalic process suddenly narrowed from a little in front of eyes; tegmina somewhat narrow, their greatest breadth less than a third of their length, their apical margins more or less obliquely subtruncate...... SAIVA, p. 192.

b. Face, laterally, somewhat roundly ampliate near apex; tegmina with only third or apical area furnished with remote transverse small veins or veinlets .... ALCATHOUS, p. 197.

Genus PYROPS.

Pyrops, *Spin. Ann. Soc. Ent. Fr.* 1839, p. 231; *Amy. & Serv. Hém.* p. 491 (1843); *Stål, Hem. Afr.* iv. pp. 133 & 139 (1866); *Atkins. J. A. S. Beng.* liv, p. 139 (1885); *Dist. Tr. E. S.* 1893, p. 443.
Zanna, *Kirk. J. Nat. Hist. Soc. Bomb.* xiv, p. 47 (1902); *Melich. Hom. Faun. Ceylon*, p. 13 (1903).

Type, *P. tenebrosus*, Fabr., an Ethiopian species.

Distribution. Ethiopian and Oriental Regions.

In a monographic list of the species of this genus (1893) I wrote—"To those who maintain that the first described or enumerated species of a genus is to be taken as the type of that genus, it would appear that a new generic name is required, for the first species cited is the *Fulgora candelaria*, Linn., which is undoubtedly not a *Pyrops* in the sense universally used. However, all but some recent Homopterists have followed Spinola's second division as typical, and no useful end would be served in disturbing the arrangement." Subsequently Kirkaldy (1902) proposed the substitution of the generic name *Zanna* for the group of species which had hitherto been represented by the genus *Pyrops*, a disturbance in nomenclature for which we can see no adequate reason.

The characters of *Pyrops* are as follows:—Head forwardly produced in a long process, as long or longer than the abdomen, its apex obliquely truncate, behind the eyes furnished with a subconical or subtriangular callosity, vertex transversely convex, continued to the apex of the process; eyes small; second joint of antennæ short and thick; pronotum and mesonotum moderately transversely convex, not ridged, the pronotum gradually anteriorly narrowed, scarcely or very slightly sinuate at base; tegmina almost entirely reticulate, valvate or lobate behind the clavus; legs robust, short, the anterior trochanters shortly spinous.

A. *Abdomen above fulvous or ochraceous.*

1683. **Pyrops dohrni,** *Stål, Öfv. Vet.-Ak. Förh.* 1858, p. 449; *Dist. Tr. E. S.* 1893, p. 447; *Kirk.* (Zanna) *J. Bomb. N. H. Soc.* xiv, p. 48, pl. A, f. 3 (1902).
Pyrops mustelinus, *Dist. A. M. N. H.* (5) xii, p. 243 (1883).
Zanna punctata, *Melich. Hom. Faun. Ceylon,* p. 14, t. i, f. 3 (1903).

Body and tegmina above and beneath very pale ochraceous, the head, pronotum, mesonotum, sternum, tegmina, and legs minutely

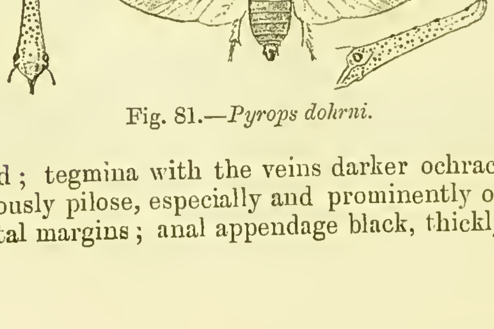

Fig. 81.—*Pyrops dohrni.*

black-spotted; tegmina with the veins darker ochraceous; abdomen cretaceously pilose, especially and prominently on the posterior segmental margins; anal appendage black, thickly and closely

cretaceously pilose on its lateral areas; wings pale creamy white, the veins pale ochraceous; femora ochraceous, annulated with black near apex, and with a few small black spots between the annulation and base; tarsi with the apices of the joints more or less fuscous.

Length excl. tegm. 34; head 14½ to 15; exp. tegm. 49 to 55 millim.

Hab. Madras Province; Trivandrum. Ceylon (*Green*).—Java (*Coll. Dist.*).

Dr. Melichar (*supra*) has unfortunately plunged this species into the greatest confusion. He has referred to it as *punctata*, Oliv., a well-known Ethiopian species, and one which Olivier described from Stoll's figure, representing a species which Stoll stated was from the coast of Guinea. Melichar (mixing two African species) also quotes in his synonymy Germar, Gray, and Spinola; all which three authors give the proper Ethiopian habitat. But Melichar goes farther; he places *Pyrops dohrni*, Stål, as a synonym of *Saiva coccinea* of Walker (well figured by Kirkaldy), to which it has absolutely no resemblance. This error the difference in coloration alone should have prevented. Moreover, Stål himself, when he examined Walker's types, stated that "*Hotinus coccineus*, Walk.=*Hotinus guttifer*, Stål" (Öfv. Vet.-Ak. Förh. 1862, p. 485).

B. *Abdomen above black.*

a. *Head including cephalic process about as long as abdomen and only prominently punctate on its basal area.*

1684. **Pyrops chinensis**, *Dist. Tr. E. S.* 1893, p. 448.

Head, thorax, tegmina, and legs sordidly greyish, very slightly tinged with ochraceous; cephalic process with a few black spots, more numerous on its basal area, its apical margin ochraceous; thorax somewhat thickly spotted with black; abdomen black, more or less tinged with cretaceous, the posterior segmental margins obscurely brownish; legs prominently and irregularly spotted with black; tegmina thickly spotted with black, the spots slightly larger and more prominent on anterior and apical areas, the venation ochraceous; wings lacteous, the venation pale brownish-ochraceous; cephalic process about as long as the abdomen, its apex obliquely truncate and moderately excavate, exhibiting eight narrow longitudinal carinæ, some of which are much waved and become obscure towards base.

Length excl. tegm. 34 to 35; head 14; exp. tegm. 60 to 65 millim.

Hab. Nága Hills (*Doherty*).—China; Chia-Hou-Ho (*Coll. Dist.*).

Besides differing in colour from the preceding species, *P. chinensis* may also be differentiated by the more robust cephalic process.

1685. **Pyrops chennelli**, sp. n.

Head, pronotum, body beneath, legs, and tegmina pale ochraceous; head coarsely blackly punctate, sparingly above at base, and more thickly so on basal half of each lateral area; thorax above and sternum sparingly blackly punctate; femora with a subapical macular black annulation, the tibiæ blackly punctate beneath; abdomen above black, the posterior segmental margins ochraceous, abdomen beneath more or less shaded with piceous; tegmina finely spotted with black, the spots a little larger on upper half, smaller and denser on the posterior half; wings lacteous with the venation ochraceous; head including caphalic process about as long as abdomen, the central carinæ faint both above and beneath, the apex ridged, and with a subapical ridge connected with the apex by a longitudinal carina, face strong, marginally ridged.

Length excl. tegm. 25; head 10; exp. tegm. 47 millim.

Hab. Assam; Nâga Hills (*Chennell*).

aa. *Head including cephalic process longer than abdomen and prominently punctate nearly throughout its entire length.*

1686. **Pyrops affinis**, *Westw.* (Fulgora) *Trans. Linn. Soc.* xviii, p. 144, t. xii, f. 6 (1841); *Dist. Trans. Ent. Soc.* 1893, p. 448; *id.* (part.) *Kirby, J. Linn. Soc., Zool.* xxiv, p. 133 (1891).
Pyrops punctata (part.), *Walk. List Hom.* ii, p. 268 (1851); *id.* (part.) *Atkins. J. A. S. Beng.* liv, p. 140 (1885).

This species is allied to the preceding (*P. chennelli*), from which it differs by the head including cephalic process being coarsely blackly punctate nearly throughout its entire length, and also by being considerably longer than the abdomen; the abdomen beneath is blackly muculate, not suffused with piceous.

Length excl. tegm. 27 to 28; head 12 to 12½; exp. tegm. 51 to 58* millim.

Hab. Sikhim (*Coll. Dist.*).

This species appears to have been originally described and figured from one of Gen. Hardwicke's drawings of the haustellated insects of Nepaul, now contained in the library of the British Museum.

Genus **FULGORA**.

Fulgora, *Linn. Syst. Nat.* (ed. xii.) i, p. 703 (1767); *Stål, Hem. Afr.* iv, p. 133 (1866).
Hotinus, *Amy. & Serv. Hém.* p. 490 (1843).
Pyrops, *Kirk. J. Bomb. Nat. Hist. Soc.* xiv, p. 47 (1902); *Melich. Hom. Faun. Ceylon*, p. ii (1903).

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* According to Westwood's figure.

Type, *F. candelaria*, Linn.

Distribution. Oriental and Malayan Regions, exteu ng north to China.

There have been some renewed attempts to supplant the name of this well-known and interesting genus, which if there was sufficient ground for so doing would still be a misfortune in nomenclature. In 1764 Linnæus proposed his genus *Laternaria*, which Kirkaldy affirms is a synonym of *Fulgora*, Linn. (1767), and which he rejects as lacking description. But Linnæus denoted *Laternaria* by reference to figures in Merian and Rösel, and fixing the type as *L. phosphorea*, Linn., afterwards referred to it under *Fulgora* (1867) as *laternaria*, Linn. It certainly seems pedantry to refuse to recognize any old genus fixed by reference to good figures, and to put in its place one only insufficiently and vaguely described, as was usual in the writings of the early entomologists. Moreover, *Laternaria* represents a genus of Neotropical insects possessing a striking and peculiar facies, not in any way to be confused with that of *Fulgora*. I have given a synopsis of the species of *Laternaria* (*cf.* Biol. Centr.-Amer., Rhynch. Hom. i, p. 22, 1883). *Fulgora*, Linn. (1767), has its type in *F. candelaria*, Linn., the second species previously included in *Laternaria* (1764). Amyot and Serville (1843), not recognizing *Laternaria*, proposed the genus *Hotinus* and as its type *candelarius*, a course previously adopted by Spinola (1839), when he used the same species as the type of the first division of his genus *Pyrops*. Westwood, Stål, Butler, Atkinson, and the present writer have always recognized the genus as *Fulgora*, and by this name there is abundant reference to it in natural history publications.

Fulgora, as described by Stål, is to be recognized by the "vertex much broader than the eyes; head furnished with a long process, rounded or subtetragonal; genæ truncated before the eyes; front slightly sinuated at apex, furnished with 2–3 longitudinal ridges; legs slender; mesonotum (scutellum of Stål) slightly carinate; cephalic process more or less curved." Other characters are given in the generic synopsis (*ante*, p. 179).

I. Apex of cephalic process not strongly globose.

A. *Wings ochraceous with the apical areas black.*

a. *Head and cephalic process ochraceous, measured from apex to eyes as long as from anterior margin of mesonotum to abdominal apex.*

1687. **Fulgora candelaria,** *Linn.* (Cicada) *Acta Holm.* p. 63, t. i, ff. 5 & 6 (1746); *id.* (Laternaria) *Mus. Lud. Ulr.* p. 153 (1764); *id.* (Fulgora) *Syst. Nat.* (ed. xii.) i, p. 703 (1767); *Fabr. Syst. Ent.* p. 673 (1775); *Oliv. Enc. Méth.* vi, pp. 568 & 593, t. cix, f. 3 (1790); *Germ.* (Flata) *Mag.* iii, p. 189 (1818); *Spin.* (Pyrops) *Ann. Soc.*

Ent. Fr. 1839, p. 238; *Amy. & Serv.* (Hotinus) *Hém.* p. 491 (1843); *Westw.* (Fulgora) *Tr. Linn. Soc.* xviii, p. 138 (1841); *Atkins. J. A. S. Beng.* liv, p. 128 (1885).

Head (including cephalic process) brownish-ochraceous above, a little paler (especially at base) beneath, minutely spotted with white, the apex ochraceous; pronotum and mesonotum brownish-ochraceous, the first with two indented discal spots, and the latter with four anterior obconical and two oblique discal spots, black; metanotum, abdomen above, sternum, and legs ochraceous, spots to metanotum, lateral segmental spots to abdomen above, anal appendage, anterior and intermediate tibiæ and tarsi, and abdomen beneath black, the last with the posterior segmental margins, lateral margins, and sexual organs ochraceous; tegmina piceous, with closely reticulate pale olivaceous venation, with an

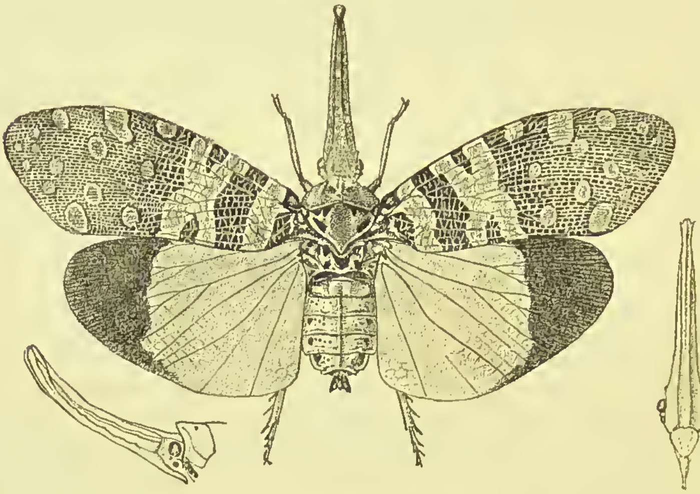

Fig. 82.—*Fulgoria candelaria.*

ochraceous transverse fascia with pale margins near base, two similar fasciæ often medially fused near centre, followed by two transverse series of spots and an apical cluster of ochraceous spots; wings ochraceous, with the apical area broadly black; cephalic process considerably upwardly recurved, its apex a little compressed, measured from angle of apex to eyes about as long as from anterior margin of mesonotum to abdominal apex.

Length ceph. process, angle from apex to eyes 16 to 20; eyes to apex abdom. 21 to 25; exp. tegm. 65 to 75 millim.

Hab. Sikhim, Assam (*Ind. Mus.*). "Himalaya" (*Coll. Dist.*).—Cambodia; Hainan; China.

A lepidopterous parasite in the waxy secretion of this species has been described by Prof. Westwood (Tr. Ent. Soc. 1876, p. 519).

a'. *Head and cephalic process green, measured from apex to eyes as long as from posterior angle of mesonotum to abdominal apex.*

1688. **Fulgora viridirostris**, *Westw.* (Fulgora (Hotina)) *Cab. Orient. Ent.* p. 8, t. iii, f. 4 (1848); *Atkins. J. A. S. Beng.* liv, p. 129 (1885).

Fulgora brevirostris, *Butl. Proc. Zool. Soc.* 1874, p. 97, t. xv, f. 1; *Atkins. J. A. S. Beng.* liv, p. 128 (1885).

Head (including cephalic process) green, or in faded specimens ochraceous, minutely spotted with white; pronotum with two dark indented discal spots; mesonotum with four obconical anterior spots and an oblique spot on each lateral area (often obscure) piceous; prosternum with a longitudinal black fascia on each side; rostrum piceous; tegmina closely resembling in markings those of *F. candelaria*; wings ochraceous, with the apical areas broadly black; cephalic process considerably upwardly recurved, its apex a little compressed, measured from angle of apex to eyes about as long as space between posterior angle of mesonotum and abdomen.

Length ceph. process, angle from apex to eyes 12 to 15; eyes to apex abdom. 19 to 21; exp. tegm. 65 to 73 millim.

Hab. Assam; Margherita (*Doherty*). Jumna Valley (*Mackinnon*). Burma; North Chin Hills (*Watson*).—Penang (*Bowring*).

a². *Head and cephalic process black above, ochraceous beneath, its apex concolorous, measured from apex to eyes as long as from middle of mesonotum to abdominal apex.*

1689. **Fulgora spinolæ**, *Westw.* (Fulgora (Pyrops)) *A. M. N. H.* ix, p. 118 (1842); *id.* (Fulgora (Hotina)) *Cab. Orient. Ent.* p. 73, t. xxxvi, f. 1 (1848); *Atkins. J. A. S. Beng.* liv, p. 129 (1885).

Head (including cephalic process) above and on lateral areas black, minutely spotted with white, beneath ochraceous; thorax above ochraceous or greenish-ochraceous, a broad central black fascia traversing both pro- and mesonota; three small spots on each side of anterior margin, a larger oblique spot on disk of each lateral area, and two small posterior spots to mesonotum black; abdomen, body beneath, and legs ochraceous, a black fascia traversing lateral areas of pro- and mesosterna; rostrum, tibiæ, and tarsi black or piceous; body beneath greyishly pubescent, with some transverse segmental piceous shadings to abdomen beneath; tegmina and wings coloured and marked generally as in the preceding species; cephalic process considerably upwardly recurved, its apex a little compressed, measured from angle of apex to eyes as long as from middle of mesonotum to abdominal apex.

Length ceph. process, angle from apex to eyes 16 to 20; eyes to apex abdom. 20 to 23; exp. tegm. 70 to 73 millim.

Hab. Sikhim, Sylhet, Assam (*Ind. Mus.*); Margherita and Nága Hills (*Doherty*). Mysore (*Ind. Mus.*).

a[3]. *Head and cephalic process black above, olivaceous beneath, its apex ochraceous, measured from apex to eyes as long as from posterior angle of mesonotum to abdominal apex.*

1690. **Fulgora lathburi**, *Wm. Kirby, Tr. Linn. Soc.* xii, p. 450 (1818); *Guér. Icon. Règne An., Ins.* t. lviii, f. 2 (1830–4); *Germ.* (Flata) *Thon's Arch.* ii, 2, p. 46 (1830); *Atkins.* (Fulgora) *J. A. S. Beng.* liv, p. 129 (1885).

Head (including cephalic process) above and laterally black, minutely spotted with white, beneath pale ochraceous, its apex ochraceous; thorax above ochraceous or greenish-ochraceous; anterior margin and a broad central fascia to pronotum, a broad central maculate fascia, two small spots on each side of anterior margin, and a large oblique spot on each lateral area of mesonotum black; abdomen ochraceous, sternum and legs pale olivaceous; a black fascia on each lateral area of pro- and mesosterna; rostrum, tibiæ, and tarsi piceous or testaceous-brown; tegmina piceous, with the reticulate venation pale green, somewhat closely ornamented with round pale castaneous spots whose margins are pale green, the apical spots smallest, and some of the subapical spots confluent; wings ochraceous, their apical areas largely black; cephalic process considerably upwardly recurved, its apex a little globose, measured from angle of apex to eyes about as long as from posterior angle of mesonotum to abdominal apex.

Length ceph. process, angle from apex to eyes 15; eyes to apex abdom. 23; exp. tegm. 80 millim.

Hab. Silhet (*Sowerby*).—China; Hong Kong (*Coll. Dist.*).

B. *Wings whitish or greenish-white, apical areas piceous with white spots.*

b. *Cephalic process very strongly recurved, black above, olivaceous beneath, measured from apex to eyes nearly as long as from anterior margin of mesonotum to abdominal apex.*

1691. **Fulgora connectens**, *Atkins. J. A. S. Beng.* liv, p. 130 (1885); *id. J. A. S. Beng.* lvii, p. 338, t. xv, middle figure.

Head (including cephalic process) above and on lateral areas black, beneath olivaceous; thorax black or piceous; pronotum with a very broad, greenish-ochraceous, transverse basal fascia; mesonotum with the anterior angles, lateral margins, and posterior angle pale tawny; abdomen pale brownish-ochraceous, very thickly greyishly tomentose at base; body beneath and legs brownish-ochraceous; rostrum, tibiæ, tarsi, and anal appendage black or piceous; tegmina piceous with the reticulate venation pale green, crossed on basal half by three broad ochraceous fasciæ, followed by a series of three spots, two together near costa, the other near posterior margin, before apex a series of five spots, three connected above and two beneath, and two or three smaller spots on apical

area, the costal membrane is ochraceous with four black spots and there are three black spots on claval area; wings white, basal area suffused with pale green, apical area black, with five or six white spots; cephalic process very strongly recurved, its apex a little compressed, measured from angle of apex to eyes nearly as long as from anterior margin of mesonotum to abdominal apex.

Length ceph. process, angle from apex to eyes 19; eyes to apex abdom. 23; exp. tegm. 80 millim.

Hab. Burma; Karen Hills (*Doherty*). Tenasserim (*Ind. Mus.*).

b′. *Cephalic process moderately recurved, usually some shade of fulvous above, olivaceous or ochraceous beneath, measured from apex to eyes about as long as body excluding head.*

1692. **Fulgora oculata**, *Westw. Tr. Linn. Soc.* xviii, p. 142, t. xii, f. 5 (1841)*; *Atkins. J. A. S. Beng.* liv, p. 131 (1885).
Var. a. oculata, *Westw.* (Fulgora (Hotina)) *Cab. Orient. Ent.* p. 73, t. xxxvi, f. 2 (1848).
Var. b. subocellata, *Guér.* (Fulgora) *Rev. Zool.* p. 183 (1839); *Deless. Souv. Voy. Inde*, p. 66, t. xvi, f. 1 (1842).
Var. c. verhuelli, *Atkins. J. A. S. Beng.* liv, p. 132 (1885).

Head (including cephalic process) fulvous or olivaceous, finely spotted with white above, ochraceous or pale olivaceous beneath; head with an obscure piceous spot at base; body and legs fulvous-ochraceous; pronotum with two discal oblique spots and a spot on each lateral area, mesonotum with six spots (arranged in pairs) on anterior margin and a spot on each lateral area, piceous; abdomen strongly cretaceously tomentose; apices of anterior and intermediate femora, anterior and intermediate tibiæ and tarsi, posterior tarsi and the rostrum piceous or black; tegmina pale olivaceous, finely cretaceously tomentose, sparingly ornamented with small fulvous spots with pale margins, those on costal area with wider paler margins, a few transverse linear piceous costal spots above radial area; wings subhyaline, cretaceously tomentose, with a central orange-red patch towards costal area and with a few cretaceous apical spots.

This is the typical coloration and marking: the varietal forms vary in having the tegmina darker in hue, the ocellated spots much larger, and the apices of the wings with a distinct piceous background for the cretaceous spots; cephalic process moderately recurved, its apex a little compressed, measured from angle of apex to eyes about as long as body excluding head.

Length ceph. process, angle from apex to eyes 21; eyes to apex abdom. 21; exp. tegm. 78 to 88 millim.

Hab. Nepal. Malabar.—Malay Peninsula. Java. Borneo.

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* 1841 is the date of the vol. in which Westwood's paper appeared. That paper, however, was read in 1837, and probably was published in the part of the 'Transactions' issued in that year or the next. Consequently we consider Westwood's name has priority over Guérin's specific name.

C. Wings bluish-green, with the apical area and usually the posterior margin black.

c. Cephalic process castaneous, its apex reddish-ochraceous and not compressed but slightly inflated, measured from angle of apex to eyes about as long as from anterior margin of mesonotum to abdominal apex.

1693. **Fulgora pyrorhyncha**, *Don. Ins. Ind., Hem.* lvii, f. 1 (1800); *Westw. Tr. Linn. Soc.* xviii, p. 139 (1841); *Atkins. J. A. S. Beng.* liv, p. 133 (1885).
Fulgora rajah, *Guér. Rev. Zool.* p. 183 (1839).
Fulgora ampleetens, *Atkins. J. A. S. Beng.* liv, p. 133 (1885).

Head (including cephalic process) castaneous, with small white spots, its apex reddish-ochraceous; pronotum, mesonotum, sternum, and legs dull castaneous; abdomen piceous, greyishly tomentose; tegmina ochraceous, the cellular areas formed by the reticulate veins (excepting the subapical area) more or less piceous, in the paler subapical area a transverse series of about four darker spots with paler margins and some scattered much smaller spots on apical area; wings bluish-green, the apical and posterior areas broadly black, the black coloration extending a little inwardly along the veins; cephalic process moderately recurved, its apex slightly inflated, measured from angle of apex to eyes about as long as from anterior margin of mesonotum to abdominal apex.

Length ceph. process, angles from apex to eyes 22; eyes to apex abdom. 25; exp. tegm. 85 to 91 millim.

Hab. India (*Governor Holford*).—Malay Peninsula; Perak (*Coll. Dist.*).

The type described and figured by Donovon is supposed to have been acquired by Gov. Holford in Nepal.

c′. Cephalic process castaneous, its apex concolorous and moderately compressed, measured from angle of apex to eyes about as long as from anterior margin of mesonotum to abdominal apex.

1694. **Fulgora karenia**, *Dist. Tr. E. S.* 1891, p. 517, t. xx, f. 2, *a* (1891).

Head (including cephalic process), thorax above and beneath, and the femora castaneous; tibiæ, tarsi, and the abdomen above and beneath piceous; posterior margins of the abdominal segments and base of abdomen above ochraceous; tegmina black, thickly covered with the reticulated venation which is ochraceous, and with the following ochraceous markings—three macular transverse fasciæ on basal half, followed by a transverse series of three small spots widely separated, a broad transverse fascia near apical area, between which and apex are a few small scattered spots; wings very pale bluish-green, the apical and posterior areas very

broadly black; cephalic process moderately recurved, its apex slightly compressed, measured from angle of apex to eyes about as long as from anterior margin of mesonotum to abdomiual apex.

Length ceph. process, angle from apex to eyes 20; eyes to apex abdom. 24; exp. tegm. 84 millim.

Hab. Burma; Karen Hills (*Doherty*). Tenasserim (*Brit. Mus.*).

c^2. *Cephalic process olivaceous or brownish-ochraceous, measured from angle of apex to eyes about as long as abdomen.*

1695. **Fulgora maculata**, *Oliv. Enc. Méth.* vi, p. 568 (1791); *Dunc. Nat. Libr.* i, p. 284, t. xxiii, f. 2 (1840); *Atkins. J. A. S. Beng.* liv, p. 134 (1885); *Melich.* (Pyrops) *Hom. Faun. Ceylon*, p. 12 (1903).
Hotinus fulvirostris, *Walk. List Hom. Suppl.* p. 41 (1858); *Atkins.* (Fulgora) *J. A. S. Beng.* liv, p. 134 (1885).
Stoll, Cig. f. 143, *a*.

Head (including cephalic process) and thorax above olivaceous, the first minutely spotted with white; thorax above with some piceous suffusions and more or less cretaceously tomentose; abdomen above pale greenish with some darker markings, beneath piceous; sternum ochraceous or greenish-ochraceous; trochanters and legs piceous; tegmina black, the reticulate venation greyish, covered with large cretaceous, tomentose spots arranged in three very irregular transverse series on basal half, and more scattered and less fused spots on apical area; wings dark bluish-green, the apical and posterior areas very broadly black; cephalic process moderately recurved, its apex a little compressed, measured from angle of apex to eyes about as long as the abdomen.

Length ceph. process, angle from apex to eyes 14; eyes to apex abdom. 22; exp. tegm. 67 to 82 millim.

Hab. Coromandel coast (*fide Stoll*). Ceylon.

This is the common and dominant species of the genus in Ceylon. I am almost certaiu I have seen a specimen from Trivandrum, but cannot now find it in my collection.

1696. **Fulgora delesserti**, *Guér. Rev. Zool.* p. 183 (1839); *Deless. Souv. Voy. Inde*, ii, p. 66, t. xvi, f. 2 (1843); *Atkins. J. A. S. Beng.* liv, p. 135 (1885).

Head (including cephalic process) olivaceous-green or brownish-olivaceous; thorax above reddish-brown; mesonotum with three spots on each side of anterior margin, an oblique spot on each lateral area, and a spot before posterior angle piceous or black; abdomen, body beneath, and legs ochraceous; apical area of abdomen beneath, tibiæ, tarsi, and rostrum more or less piceous; tegmina black, the reticulate venation olivaceous, ornamented with ochraceous spots arranged as follows—three irregular transverse series on basal half, those on apical area being more scattered and less fused; wings bluish-green, the apical aud posterior areas

broadly black; cephalic process moderately recurved, its apex a little compressed, measured from angle of apex to eyes about as long as the abdomen.

Length ceph. process, angle from apex to eyes 15; eyes to apex abdom. 23; exp. tegm. 82 millim.

Hab. Nilgiri Hills, Malabar. Karwar (*Ind. Mus.*). Trivandrum (*Coll. Dist.*).

c[3]. *Cephalic process black above, olivaceous beneath, measured from angle of apex to eyes a little longer than abdomen.*

1697. **Fulgora andamanensis,** *Dist. Tr. E. S.* 1880, p. 152, t. v, f. 7, *a*; *Atkins. J. A. S. Beng.* liv, p. 135 (1885).

Head (including cephalic process) above and on lateral areas black, finely spotted with white, olivaceous beneath, eyes and ridge near their inner margin ochraceous; thorax above brownish-ochraceous; pronotum with the anterior lateral margins, two central maculate fasciæ, and a spot on each lateral area, mesonotum with a broad central fascia, four small spots on anterior margin, an elongate spot on each lateral area, and two small spots in front of posterior angle, black; abdomen pale ochraceous, anal appendage piceous; body beneath brownish-ochraceous; an elongate spot on each lateral area of prosternum, disk of mesosternum, lateral areas of metasternum, abdomen beneath, tibiæ, tarsi, and rostrum more or less black or piceous; tegmina black, the reticulate venation pale green, ornamented with brownish-ochraceous spots with pale margins, arranged in three irregular transverse series on basal half, the spots on apical half more scattered and generally smaller: wings bluish-green, the apical area broadly, the posterior margin narrowly black; cephalic process somewhat strongly recurved, measured from angle of apex to eyes a little longer than abdomen.

Length ceph. process, angle from apex to eyes 16; eyes to apex abdom. 22; exp. tegm. 68 millim.

Hab. Andaman Islands.

c[4]. *Cephalic process black or piceous, measured from angle of apex to eyes about as long as abdomen.*

1698. **Fulgora rogersi,** sp. n.

Cephalic process, head, and thorax above piceous, the two latter much covered with cretaceous pubescence, the cephalic process spotted with same on its basal areas both above and beneath; abdomen greenish or greenish-ochraceous, the segmental margins paler and somewhat cretaceously pubescent; head beneath olivaceous; legs piceous; tegmina for the basal two-thirds black with the veins and numerous reticulations green, apical third pale brownish ochraceous with numerous small piceous marks on apical area, a number of cretaceous spots with black centres arranged in

transverse series, one near base, two somewhat close together near middle, one consisting of three spots only near apex of dark coloration, on the pale area an angulated broken series of four above and three beneath, and two or three small spots near apex; wings bluish-green, with the apical area black; cephalic process much upwardly recurved, its apex robust but not dilated, measured from angle of apex to eyes about as long as abdomen.

Length ceph. process, angle from apex to eyes 18; eyes to apex abdom. 26; exp. tegm. 77 millim.

Hab. Great Nicobar (*Gilbert Rogers*).

II. Apex of cephalic process strongly globose.

D. *Wings purplish-white, the apical area black.*

1699. **Fulgora clavata**, *Westw. Tr. Linn. Soc.* xviii, p. 139, t. xii, f. 1 (1841); *id. Cab. Orient. Ent.* p. 7, t. iii, f. 1 (1848); *Atkins. J. A. S. Beng.* liv, p. 130 (1885).
Hotinus ponderosus, *Stål, Öfv. Vet.-Ak. Förh.* 1854, p. 244; *Atkins. J. A. S. Beng.* liv, p. 131 (1885).

Head (including cephalic process) black, spotted minutely with white, its apex strongly globose and shining castaneous; thorax and abdomen above much tomentosely suffused with white; a black spot on each lateral area of mesonotum; sternum beneath and legs piceous, whitishly tomentose; abdomen beneath red or

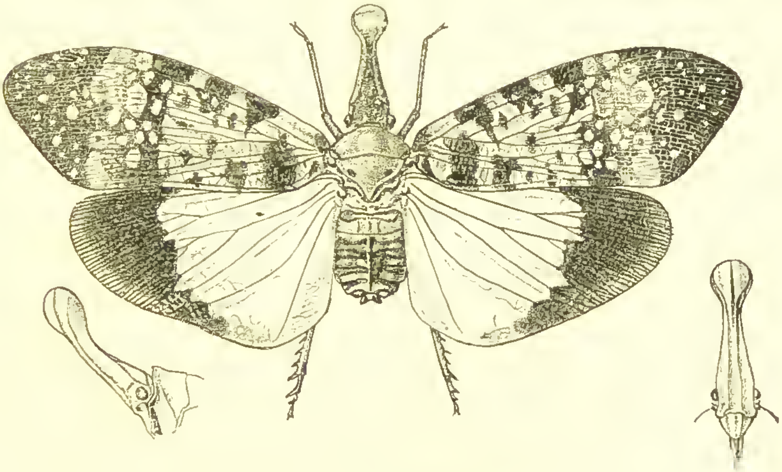

Fig. 83.—*Fulgora clavata.*

reddish-ochraceous; tegmina black, more or less cretaceously tomentose, nearly always so on basal half, which is ornamented with black spots inconstant in shape, number, and size, the apical half is usually black, ornamented with a number of cretaceous spots with castaneous centres, also inconstant in size, number, and

shape, but becoming smaller near apex; wings purplish-white, the apical area black; cephalic process robust, globosely clavate at apex, measured from angle of apex to eyes a little longer than abdomen.

Length ceph. process, angle from apex to eyes 12 to 14; eyes to apex abdom. 17 to 22; exp. tegm. 62 to 86 millim.

Hab. Assam; Margherita (*Doherty*). Khási Hills (*Chennell*). Sikhim, Sibságar, Shillong (*Ind. Mus.*).

Genus SAIVA, nov.

Type, *S. gemmata*, Westw.

Distribution. Oriental Region.

Allied to *Fulgora*, but the cephalic process very slender and suddenly narrowed from a little in front of eyes, not gradually narrowed as in *Fulgora*; tegmina much narrower, their greatest breadth less than a third of their length, their apical margins more or less obliquely subtruncate, not convex.

Owing to the slender and fragile character of the cephalic process in this genus most specimens arrive in a more or less mutilated condition in that respect, thus rendering the differentiation of the species by this useful and trustworthy character in some cases impossible.

A. *Wings bluish-green, marked and spotted with black.*

a. *Cephalic process from angle of apex to eyes about as long as abdomen.*

a. Cephalic process obliquely ascendant.

b. Apex of cephalic process slender.

1700. **Saiva gemmata**, *Westw.* (Fulgora (Hotina)) *Cab. Orient. Ent.* p. 7, t. iii, f. 2 (1848); *Atkins.* (Fulgora) *J. A. S. Beng.* liv, p. 137 (1885).

Fulgora curtiprora, *Butl. A. M. N. H.* (4) xiv, p. 131 (1874); *Atkins. J. A. S. Beng.* liv, p. 136 (1885).

Head and thorax above dull ochraceous; a lateral line to cephalic process black; pronotum with a transverse series of four black spots, the two central ones indented and surrounded with piceous, followed behind by a small concolorous deeply incised spot; mesonotum with four spots on anterior margin (two central and one at each lateral angle), a spot on each lateral margin and another before posterior angle black; abdomen black, the lateral and posterior segmental margins green, the last inwardly margined with grey; sternum and coxæ dull ochraceous; legs pale castaneous; tegmina greenish on basal area, reddish-brown beyond middle, ornamented with reddish-brown spots, those on basal half margined with black, the basal half is also covered with a number of small black spots, and on the apical half the reticulate areas

are black or piceous; wings black; anal area (excluding apex), three oblique subbasal spots, and a transverse series of four spots (fused in pairs) crossing middle, green; cephalic process suddenly obliquely ascending from a little before eyes, measured from angle of apex to eyes about as long as abdomen.

Fig. 84.—*Saiva gemmata.*

Length ceph. process, angle from apex to eyes $9\frac{1}{2}$ to 11; eyes to apex abdom. 12 to 19; exp. tegm. 46 to 53 millim.

Hab. Sikhim (*Ind. Mus.*). Assam; Nága Hills (*Doherty*). Khási Hills (*Ind. Mus.*). Darjiling (*Coll. Dist.*).

bb. Apex of cephalic process moderately incrassate.

1701. **Saiva nodata**, sp. n.

Head (including cephalic process) pale olivaceous-green, finely and sparingly spotted with white, its apex ochraceous, eyes black; thorax above pale olivaceous-green; pronotum with two central discal spots and a spot on each lateral area, and mesonotum with a spot on each lateral area, black; abdomen above piceous or black, posterior segmental margins green inclining to ochraceous; head beneath, sternum, and legs olivaceous; abdomen beneath reddish-ochraceous; anterior and intermediate legs with a subapical annulation to the femora, three annulations to tibiæ, and the tarsi black; tegmina pale virescent, somewhat thickly covered with ochraceous spots margined with black, those on costal membrane truncate, incomplete; wings bluish-green, apical area and posterior margin black, the green discal area somewhat largely and confluently spotted with black; cephalic process with its apex moderately nodulose, measured from angle of apex to eyes about as long as abdomen.

Length ceph. process, angle from apex to eyes 10; eyes to apex abdom. 16; exp. tegm. 50 millim.

Hab. Bombay Province; N. Kanara, Anmoda (*E. Y. Watson, Brit. Mus.*).

Allied in general appearance to *S. gemmata*, Westw., differing primarily by the nodulose apex to the cephalic process, and also by the much paler tegmina, &c.

aa. Cephalic process almost perpendicularly extended.

1702. **Saiva bullata**, *Dist.* (Fulgora) *Tr. E. S.* 1891, p. 519, t. xx, f. 1, *a*.

Head with the base pale greenish-ochraceous, the cephalic process black; thorax above pale greenish-ochraceous; pronotum with three black spots, the central one largest and somewhat duplex; mesonotum with two central spots on anterior margin, two spots on each lateral margin, and a spot near posterior angle black; abdomen above shining black; face, rostrum, sternum, and coxæ ochraceous; legs red, bases and apices of anterior and intermediate tibiæ, apices of posterior tibiæ, and the tarsi black; abdomen beneath black, the apex and posterior segmental margins ochraceous; tegmina greenish-ochraceous, an irregular transverse fascia beyond centre and the apical area piceous, the first containing six, the latter some eight ochraceous spots, the basal area somewhat thickly covered with small black spots and with scattered larger pale and black margined spots; wings bluish-green, with the apex broadly black, the posterior margin narrowly of the same colour and with discal black streaks and patches; cephalic process recurved and almost perpendicularly extended, measured from angle of apex to eyes about as long as abdomen.

Length ceph. process, angle from apex to eyes 6; eyes to apex abdom. 12; exp. tegm. 44 millim.

Hab. Burma; Ruby Mines (*Doherty*).

aa. *Cephalic process from angle of apex to eyes about as long as pronotum and mesonotum together.*

1703. **Saiva guttulata**, *Westw.* (Fulgora (Pyrops)) *A. M. N. H.* ix, p. 119 (1842); *id.* (Fulgora (Hotina)) *Cab. Orient. Ent.* p. 8, t. iii, f. 3 (1848); *Atkins.* (Fulgora) *J. A. S. Beng.* liv, p. 136 (1885).

Head (including cephalic process), thorax above, body beneath and legs ochraceous; apex and central area of cephalic process above, central fascia to vertex, and a lateral elongate spot in front of each eye, black; pronotum with a series of four transverse spots (the two central ones largest and elongate), mesonotum with two anterior central discal spots and three spots on lateral margin (the one near base smallest), basal annulation and apical areas of tibiæ, and the tarsi to anterior and intermediate legs black; abdomen above ochraceous, the posterior segmental margins broadly green, with scattered piceous spots; tegmina rosaceous, the costal membrane, base of claval area, and the apical area more ochraceous; costal membrane with four imperfectly closed ochraceous spots margined with black, apical area with the inner areas of cells piceous and with a few pale spots, the remaining area with scattered rosaceous spots with black margins; wings pale bluish-green, the apical area, posterior margin, and veins with some

scattered spots on same piceous or black; cephalic process short, strongly recurved, measured from angle of apex to eyes about as long as pronotum and mesonotum together.

Length ceph. process, angle from apex to eyes 3; eyes to apex abdom. 14; exp. tegm. 50 millim.

Hab. "Northern India" (*fide Westwood*).

I have an unlocalized specimen in my own collection.

B. *Wings more or less sanguineous, apical and sometimes posterior margins fuscous or black.*

b. *Cephalic process from angle of apex to eyes about as long as abdomen.*

1704. **Saiva cardinalis,** *Butl.* (Fulgora) *A. M. N. H.* (4) xiv, p. 131 (1874); *Atkins. J. A. S. Beng.* liv, p. 138 (1885).

Head (including cephalic process) green or brownish-ochraceous, above somewhat greyishly tomentose, sparingly, minutely, and irregularly spotted with fuscous above and on the lateral margins, its apex a little infuscated; pronotum, mesonotum, body beneath, and legs green or brownish-ochraceous; abdomen above pale testaceous; head with three basal spots between the eyes, pronotum with two central spots and one on each lateral area, mesonotum with six spots on anterior margin, and one or two on each lateral area black; tegmina pale olivaceous-green, with scattered ochraceous spots with black margins, those on costal area imperfectly closed, the apical margin a little fuscous with the spots therein rather smaller; wings purplish-red, the apical margin fuscous; cephalic process measured from angle of apex to eyes about as long as abdomen.

Length ceph. process, angle from apex to eyes 9; eyes to apex abdom. 15; exp. tegm. 57 millim.

Hab. Nepal (*Brit. Mus.*). Sikhim (*Ind. Mus.*). Darjiling (*Coll. Dist.*).

bb. *Cephalic process from angle of apex to eyes about as long as abdomen and mesonotum together.*

1705. **Saiva coccinea,** *Walk.* (Hotinus) *List Hom. Suppl.* p. 42 (1858); *Kirk.* (Pyrops) *J. Bomb. N. H. Soc.* xiv, p. 47, t. A, f. 2 (1902); *Melich.* (part.) *Hom. Faun. Ceylon,* p. 12 (1903).
Hotinus guttifer, *Stål, Öfv. Vet.-Ak. Förh.* 1858, p. 448.

Head (including cephalic process), pronotum, mesonotum, sternum, and legs pale olivaceous-green; cephalic process with the ridges (excluding basal area) black, its apex a little paler; a lateral spot in front of each eye, pronotum with two central spots and a spot on each lateral area, mesonotum with six spots on anterior margin and one or two spots on each lateral area black; abdomen above sanguineous, lateral margins spotted with white and black, the

base also more or less black; abdomen beneath red, with the segmental margins black; tegmina testaceous, finely greyishly tomentose, minutely spotted with piceous, and with scattered larger pale red spots which are narrowly margined with black and mostly possess a small greyish pupil, costal membrane narrowly pale olivaceous-green; wings sanguineous, the apical area and posterior margin dark fuscous; the cephalic process is somewhat slender, moderately recurved, and measured from angle of apex to eyes almost as long as abdomen and mesonotum together.

Length ceph. process, angle from apex to eyes 11; eyes to apex abdom. 15; exp. tegm. 40 to 43 millim.

Hab. Ceylon; Kandy (*Green*).

C. *Wings ochraceous, apical areas and posterior margins fuscous or piceous.*

1706. **Saiva insularis**, *Kirby* (Hotinus), *J. Linn. Soc., Zool.* xxiv, p. 132, t. vi, f. 4 (1891); *Melich.* (Pyrops) *Hom. Faun. Ceylon,* p. 13 (1903).

Head (including cephalic process) fuscous-brown, very sparingly palely spotted on lateral areas, somewhat thickly palely spotted beneath; thorax above ochraceous, somewhat thickly fuscously punctate; pronotum with an oblique impunctate fascia on each side and an obscure central discal spot, mesonotum with an obscure central longitudinal medial ridge, two rounded spots on anterior margin, and some irregular spots on lateral margins pale ochraceous; abdomen above black, the base a little ochraceous; body beneath and legs ochraceous punctured with fuscous; tegmina reddish-ochraceous, ornamented with small paler spots, which are almost absent on subapical area; wings ochraceous, apical area and posterior margin fuscous, the last becoming piceous towards anal angle; cephalic process mutilated in type.

Length ceph. process mutilated in type; eyes to apex abdom. 15; exp. tegm. 44 millim.

Hab. Ceylon; Dambool (*Green*).

D. *Wings whitish, margins concolorous.*

1707. **Saiva virescens**, *Westw.* (Fulgora (Pyrops)) *A. M. N. H.* ix, p. 119 (1842); *id.* (Fulgora (Hotina)) *Cab. Orient. Ent.* p. 8, t. iii, f. 5 (1848); *Atkins. J. A. S. Beng.* liv, p. 138 (1885).
Hotinus semiannulus, *Walk. Cat. Hom. Suppl.* p. 42 (1858).

Head (including cephalic process) pale ochraceous, minutely spotted with white, apex a little piceous; pronotum, mesonotum, body beneath, and legs pale ochraceous; abdomen above very pale virescent; two spots on mesonotum and the anterior and intermediate tarsi black; tegmina dull pale ochraceous, somewhat sparingly ornamented with bright ochraceous spots with black margins, on margins these spots are mostly imperfectly closed; wings whitish with a very pale virescent tint; cephalic process

measured from angle of apex to eyes about as long as body excluding head.

Length ceph. process: angle from apex to eyes 14; eyes to apex abdom. 14; exp. tegm. 45 millim.

Hab. Sylhet (*Ind. Mus.*). North-western Province; Garwhal (*Coll. Dist.*).

In my own and all other specimens examined the ground-colour is pale ochraceous, as above described; in Westwood's figure it is pale virescent, as is probably the case in all fresh specimens. I have thought it better to describe only what I have seen, and to add this note.

Genus **ALCATHOUS.**

Alcathous, *Stål, Tr. E. S.* (3) i, p. 577 (1863); *Atkins. J. A. S. Beng.* liv, p. 139 (1885).

Type, *A. fecialis*, Stål.

Distribution. British India.

Head much narrower than the thorax, protuberant, face somewhat roundly ampliated near the apex, thence distinctly narrowed upwards, tricarinate; clypeus medially carinate; rostrum almost reaching abdominal apex; antennæ short, second joint very briefly subcylindrical, obliquely truncate at apex; pronotum medially unicarinate, somewhat anteriorly medially produced, the produced portion truncate, posterior margin straight; mesonotum tricarinate, twice as long as pronotum; tegmina somewhat ampliated towards apex, which is obtusely, obliquely rounded, longitudinal veins rarely furcate, interior simple, only third or apical area furnished with remote transverse small veins, irregularly anastomosed; wings with more than basal halves without transverse veins or veinlets; legs moderate in length, anterior femora beneath slightly dilated, posterior tibiæ with five or six spines.

1708. **Alcathous fecialis**, *Stål, Tr. E. S.* (3) i, p. 577 (1863); *Atkins. J. A. S. Beng.* liv, p. 139 (1885).

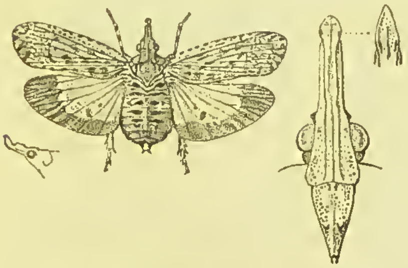

Fig. 85.—*Alcathous fecialis.*

Head, pronotum, mesonotum, and sternum brownish-ochraceous, thickly, darkly punctate; abdomen above bright reddish-ochraceous, with six large black discal spots arranged in pairs; abdomen beneath pale luteous, very thickly, coarsely, piceously punctate; legs ochraceous, annulated with piceous; tegmina pale ochraceous, the venation purplish-red, on basal area longitudinal and a little spotted with fuscous, on apical third reticulate and unspotted, the whole tegmina more or less spotted or mottled with fuscous,

the costal area spotted with dark fuscous; wings orange-yellow, apical area, posterior margin, and a few discal spots near anal area fuscous, the apical dark area inwardly margined with pale greyish; cephalic process a little recurved, measured from angle of apex to eyes about as long as pro- and mesonota.

Length ceph. process, angle from apex to eyes 3; eyes to apex abdom. 12; exp. tegm. 33 millim.

Hab. South India (*Walhouse, Brit. Mus.*).

Stål, who described the unique type in the British Museum, erroneously gave the habitat of this species as "India orient. bor."

Division *APHANARIA*.

This, with the previous division, includes all the genera of the subfamily *Fulgorinæ* found in British India, at least so far as my knowledge extends. One genus, *Homalocephala*, should probably be placed in a new division; but as it is inadvisable—at least in these volumes—to found a division on a single genus, I have included it in the *Aphanaria*, which is to be distinguished from the *Fulgoraria* by the absence of the long recurved cephalic process. In some of the *Aphanaria*, as in *Euphria* and *Kalidasa*, there is a slender, acute, cephalic protuberance, but this in no respect equals the character on which the *Fulgoraria* is divisionally separated. Divisions, as used here, are only groups of genera possessing a more or less common facies, and are proposed as aids to identification, with no pretence to be regarded as constituting morphological sections.

Synopsis of Genera.

A. Head triangularly produced in front of eyes .... HOMALOCEPHALA, [p. 199.

B. Head not, or not prominently, produced in front of eyes.

. Face longer than broad.

a. Anterior femora not ampliated at apices.

a'. Face strongly ampliated at base and considerably broader than clypeus, its lateral margins obliquely narrowed forwardly from eyes .... LIMOIS, p. 200.

a². Face slightly narrowed upward, or with the lateral margins parallel, its disk with two anteriorly divergent carinations, and with a central, sometimes obsolete longitudinal sulcation .... APHANA, p. 201.

a³. Face with two parallel discal carinations, sometimes obliterated behind middle .... LYCORMA, p. 205.

. Anterior femora distinctly ampliate above at apices.

b'. Posterior tibiæ unarmed above at base.

a¹. Face with two or three parallel carinations .... EUPHRIA, p. 207.

b^2. Posterior tibiæ with a tubercle on their upper surface at base.
  a^5. Face with two obtuse parallel ridges which are often obliterated ...... KALIDASA, p. 212.
b. Face as long as broad.
  c. Tegmina remotely reticulate .... GEBENNA, p. 214.
  c'. Entire tegmina more or less densely reticulate .... POLYDICTYA, p. 215.

Genus HOMALOCEPHALA.

Omalocephala, *Spin. Ann. Soc. Ent. Fr.* 1839, p. 259.
Homalocephala, *Amy. & Serv. Hém.* p. 492 (1843); *Stål, Hem. Afr.* iv, pp. 133 & 145 (1866); *Atkins. J. A. S. Beng.* liv, p. 141 (1885).

Type, *H. festiva*, Fabr.
Distribution. British India.

Head broad, narrower than the pronotum, triangularly or roundly produced in front of eyes, angularly prominent behind the eyes, vertex at least four times wider than the eyes and moderately flat, face flat, broader than the clypeus, its lateral margins parallel, clypeus without a medial ridge; rostrum reaching the posterior coxæ; pronotum truncate anteriorly with a medial longitudinal ridge; mesonotum about twice as long as the pronotum; tegmina with the anterior and posterior margins subparallel, the apical margin obscurely obliquely rounded, densely reticulate except in costal area, where the reticulations are obsolete, claval vein united with the commissure at the apex of the clavus; wings entire, the veins moderately reticulate on apical area: anterior and intermediate tibiæ as long as the femora.

1709. **Homalocephala festiva**, *Fabr.* (Fulgora) *Spec. Ins.* ii, p. 315 (1781); *id. Mant. Ins.* ii, p. 261 (1787); *Don. Ins. Ind., Hem.* t. vii, f. 2 (1800); *Spin.* (Omalocephala) *Ann. Soc. Ent. Fr.* 1839, p. 261; *Amy. & Serv.* (Homalocephala) *Hém.* p. 493 (1843); *Atkins. J. A. S. Beng.* liv, p. 141 (1885).

Head, pronotum, mesonotum, body beneath, and legs brownish-ochraceous, lateral and apical margins of head black; abdomen above sanguineous; head beneath, lateral areas of sternum, and posterior acetabulæ pale ochraceous; tegmina brownish-ochraceous, minutely spotted with black in the reticulate areas, with some scattered pale spots, the costal area pale reenish-flavescent with five black spots posteriorly margined with orange-yellow; wings sanguineous, apical area pale fuscous with the veins darker, the posterior margin greyish; head longer than pronotum, above with a moderate medial longitudinal ridge which is continued through the pro- and mesonota.

Fig. 86.—*Homalocephala festiva.*

Length excl. tegm. 12; exp. tegm. 33 millim.
Hab. Madras (*Coll. Dist.*).

Genus LIMOIS.

Limois, *Stål, Stett. ent. Zeit.* xxiv, p. 230 (1863); *id. Hem. Afr.* iv, p. 134 (1866); *Atkins. J. A. S. Beng.* liv, p. 141 (1885).

Type, *L. westwoodi*, Hope.

Distribution. British India.

Head much narrower than the pronotum, slightly upwardly protuberant; face with the margins carinate and with two central longitudinal ridges or carinations, narrowed anteriorly, a little dilated at posterior angles, clypeus medially carinate, vertex transverse; pronotum twice as broad as head and slightly longer, posteriorly broadly truncate, its lateral angles moderately subacutely produced, and with a subobsolete medial carination; mesonotum longer than pronotum, with three discal carinations, the middle one straight, the others curved; tegmina elongate, a little ampliated towards apices, which are obtusely obliquely rounded, the venation beyond base more or less reticulate; wings much shorter than tegmina, sinuate on posterior margins, venation on apical areas reticulate; posterior tibiæ with five spines.

1710. **Limois westwoodi**, *Hope* (Lystra), *Tr. Linn. Soc.* xix, p. 133, t. xii, f. 3 (1845); *Stål* (Limois), *Stett. ent. Zeit.* xxiv, p. 231 (1863); *Atkins. J. A. S. Beng.* liv, p. 142 (1885).

Head, pronotum, and mesonotum olivaceous; apex of protuberance to head, two central broken fasciæ to pronotum, disk of mesonotum (excluding ridges), on each side of which are three spots on anterior margin, and an angulated spot on each lateral area, black; abdomen black, the segmental margins narrowly olivaceous; body beneath and legs piceous or black, legs and rostrum annulated with dull ochraceous; tegmina with about basal half and costal area pale olivaceous, opaque, remaining area hyaline with the venation fuscous, the whole area with small piceous spots, which are largest on the olivaceous area and on the posterior margin a little beyond it; wings with rather more than basal halves sanguineous, outwardly concavely margined with fuscous, apical area hyaline with the venation fuscous; the apical and posterior margins fuscous, and with two or three black spots on the sanguineous area.

Fig. 87.—*Limois westwoodi.*

Length excl. tegm. $12\frac{1}{2}$ to 13; exp. tegm. 47 to 48 millim.

Hab. Sylhet.

Genus APHANA.

Aphæna, *Guér. Voy. Bélang. Ind. Orient.* p. 451 (1834); *Spin. Ann. Soc. Ent. Fr.* 1839, p. 240.
Aphana, *Burm. Handb. Ent.* ii, 1, p. 166 (1835); *Amy. & Serv. Hém.* p. 496 (1843); *Stål, Stett. ent. Zeit.* xxiv, p. 231 (1863); *id. Hem. Afr.* iv, p. 134 (1866); *Atkins. J. A. S. Beng.* liv, p. 142 (1885).
Penthicus, *Blanch. Hist. Nat. Ins.* iii, p. 171 (1840).

Type, *A. farinosa*, Fabr.*
Distribution. Oriental and Malayan Regions.

The name of this genus has caused much discussion. Burmeister altered Guérin's name *Aphæna* to *Aphana*, a correction which has usually been and is here considered justified. Blanchard regarded both these names as preoccupied by *Aphanus*, Laporte, and proposed that of *Penthicus* to take its place. This we consider unnecessary.

Head not protuberant, much narrower than pronotum, face slightly narrowed upward or with the lateral margins parallel and more or less distinctly broadly bisinuate, disk with two anteriorly diverging carinations and with a more obsolete central carination, clypeus with a central, sometimes subobsolete, longitudinal sulcation, vertex excavate with carinate margins and a central carination, the front broadly upwardly ridged anteriorly and laterally; pronotum broader than head, centrally, longitudinally, prominently ridged, its posterior margin truncately sinuate, its posterior angles subangularly ampliate; mesonotum a little longer than pronotum, centrally, longitudinally moderately carinate; tegmina moderately broad, the venation on apical areas reticulate; wings broad, posteriorly sinuate, the venation of apical areas moderately furcate and sinuate; anterior femora not ampliate at apex, posterior tibiæ usually with five spines.

A. *Wings with a green or bluish-green basal area.*

1711. **Aphana farinosa**, *Weber* (Cicada), *Obs. Ent.* p. 114 (1801); *Fabr.* (Lystra) *Syst. Rhyng.* p. 57 (1803); *Spin.* (Aphæna) *Ann. Soc. Ent. Fr.* 1839, p. 244; *Stål* (Aphana), *Stett. ent. Zeit.* xxiv, p. 232 (1863); *Atkins. J. A. S. Beng.* liv, p. 142 (1885).
Aphana scutellaris, *White, A. M. N. H.* xvii, p. 330 (1846); *Westw. Cab. Or. Ent.* p. 73, t. xxxvi, f. 3 (1848).
Var. saundersii, *White, MS.* (Aphæna) *Walk. List Hom.* ii, p. 277 (1851), excl. syn.

Head and pronotum dark olivaceous-green, vertex of head with

* In selecting the type of this genus we follow Stål, who rightly divided a number of structurally diverse insects included in *Aphana*, and founded for their reception several other genera.

two white tomentose spots ; mesonotum almost entirely tomentosely white ; abdomen above dark olivaceous-green, much suffused (especially at base) with white ; head beneath and prosternum dark olivaceous ; sternum and legs piceous ; abdomen beneath black ; tegmina with more than basal half dark olivaceous-green, excluding costal area tomentosely white with one or more darker spots, its outer margin darker and piceous, apical area pale brownish-ochraceous more or less suffused with white ; wings pale brownish-ochraceous ; basal disk dark olivaceous-green outwardly margined with piceous and with scattered small white spots, generally, but not always, becoming posteriorly testaceous ; anal area greyish.

Length excl. tegm. 19 to 20 ; exp. tegm. 52 to 58 millim.

Hab. Tenasserim ; Tavoy (*Doherty, Coll. Dist.*). — Malay Peninsula. Borneo. Java. Sumatra.

Atkinson (*supra*) records the exp. tegm. in this species as attaining to 66 millim., but I have not seen such large specimens.

The above description is of a fresh and unrubbed specimen; the var. *saundersii* is not found, so far as my experience extends, in British India, and is to be recognized by the wholly testaceous and not green basal disk of wings.

1712. **Aphana nicobarica,** *Stål, Berl. ent. Zeit.* xiii, p. 241 (1869); *Atkins. J. A. S. Beng.* liv, p. 147 (1885).

" Sordidly olivaceous-green ; mesonotum, pectus, abdomen, and legs piceous ; tegmina before middle æruginous, sprinkled with black, behind middle ochraceous, marked with a mouldy band and spots, apical limbus black ; wings black, a very large basal spot cærulean-virescent."

Length excl. tegm. ♀ 19 ; exp. tegm. 55 millim.

Hab. Nicobar Islands.

" Size of *A. farinosa*, from which it differs in the head produced anteriorly, seen from above equal in length and breadth between the eyes, roundly-angulated ; front longer, furnished with a recurved process. Face rugulose, tumescent at the base and with a short median process, compressed, recurved, obsoletely tricarinate, the ridges diverging upwards, the median ridge disappearing below the middle ; vertex narrowed forwards, obsoletely carinate in the middle, lateral margins dilated, elevated ; thorax furnished with a raised, acute ridge running through it, strongly bi-impressed on the disk, mesonotum tricarinate. The æruginous half of the tegmina covered with minute and often confluent black dots, closer at the apex ; apical half ochraceous with the apical limbus black, the spots and an anterior band clothed with a white powdery substance ; wings black, with a large basal patch extending a little beyond the middle cærulean-virescent ; apical margins of the dorsal segments of the abdomen green."

I have not seen this species.

B. *Wings without a green or bluish-green basal area ; usually more or less sanguineous at base and anal area.*

1713. **Aphana atomaria,** *Weber* (Cicada), *Obs. Ent.* p. 113 (1801); *Fabr.* (Lystra) *Syst. Rhyng.* p. 57 (1803); *Spin.* (Aphæna) *Ann. Soc. Ent. Fr.* 1839, p. 248; *Stål* (Aphana), *Stett. ent. Zeit.* xxiv, p. 232 (1863); *id. Hem. Fabr.* ii, p. 87 (1869); *Atkins. J. A. S. Beng.* liv, p. 143 (1885).
Aphæna nigro-punctata, *Guér. Voy. 'Coquille,' Zool.* ii, 2, p. 185 (1830); *Amy. & Serv. Hém.* p. 497 (1843).

Head and pronotum brownish-ochraceous, mesonotum more or less piceous; abdomen above sanguineous, its base piceous and suffused with greyish-white; body beneath and legs piceous; tegmina tawny, the basal area purplish, or uniformly tawny as in

Fig. 88.—*Aphana atomaria.*

specimens from British India, with two prominent black spots on costal area, one discal before the apical reticulated area, one on claval area, and another more elongate spot at base, a few minute pale subobsolete spots on apical area; wings purplish-red, or pale ochraceous with purplish base as in most specimens found in our fauna, with a cluster of black spots on basal area, and with a few white ones before apical area, which is black with bluish dots, posterior area fuscous.

Length excl. tegm. 15 to 19; exp. tegm. 46 to 55 millim.

Hab. Assam; Noa Dihing (*Chennell*). Panjab; Marri (*Ind. Mus.*).—Malay Peninsula. Sumatra. Java. China (*Coll. Dist.*).

1714. **Aphana pulchella,** *Guér.* (Aphæna) *Voy. 'Coquille,' Zool.* ii, 2, p. 186 (1830); *Spin. Ann. Soc. Ent. Fr.* 1839, p. 249; *Stål* (Aphana), *Stett. ent. Zeit.* xxiv, p. 232 (1863); *Atkins. J. A. S. Beng.* liv, p. 144 (1885).
Aphana confucius, *White, A. M. N. H.* xviii, p. 24 (1846).
Aphana io, *Walk. List Hom.* ii, p. 279 (1851).
Aphana nigro-irrorata, *Stål, Öfv. Vet.-Ak. Förh.* 1854, p. 244.

Head, pronotum, mesonotum, and sternum brownish-ochraceous; abdomen above sanguineous, beneath with legs piceous, the latter annulated with ochraceous; tegmina pale brownish-ochraceous,

basal two-thirds a little purplish, costal margin spotted with black and with a few discal black spots, those on apical area very minute and indistinct, a greyish spot outwardly broadly margined with brown near apex of posterior margin; wings purplish-red, spotted with black on basal area and with white on anterior area, apex broadly black with bluish dots, posterior margin pale fuscous.

Var. Tegmina paler and more minutely spotted with black, the apical area with some fuscous suffusions; wings ochraceous, with the base and anal area purplish-red, spotted and marked as in typical form.

Length excl. tegm. 14 to 15; exp. tegm. 37 to 42 millim.

Hab. Sikhim (*Ind. Mus.*). Assam; Noa Dihing and Khási Hills (*Chennell*). Andaman Islds. (*Ind. Mus.*).—Java (*Coll. Dist.*). China.

1715. **Aphana variegata**, *Guér.* (Aphæna) *Voy. Bélang. Ind. Orient., Zool.* p. 455 (1834); *id. Icon. Règne Anim.* t. lviii, f. 3 (1830–34); *Amy. & Serv.* (Aphana) *Hém.* p. 497, t. ix, f. 1 (1843); *Stål, Stett. ent. Zeit.* xxiv, p. 232 (1863); *Atkins. J. A. S. Beng.* liv, p. 145 (1885).

Penthicus variegatus, *Blanch. Hist. Nat. Ins.* iii, p. 171, *Hém.* t. xii, f. 4 (1840–41).

Aphæna basirufa, *Walk. List Hom.* ii, p. 278 (1851).

Head, pronotum, mesonotum, and sternum brownish-ochraceous; abdomen above sanguineous, transversely whitishly-tomentose at base; abdomen beneath and legs piceous, legs more or less annulated with ochraceous, anal abdominal segment beneath sometimes brownish-ochraceous; posterior acetabulæ greyish; tegmina very pale olivaceous, spotted with black, the spots becoming larger towards the apical area, on apical area a few very small greenish spots, and the costal area somewhat ochraceous and spotted with black; at about commencement of apical area there is a greyish spot on both anterior and posterior margins; wings orange-yellow, purplish-red on basal area, black at apex, and fuscous on posterior margin, some black spots on basal third, a few discal minute white spots near middle, and some bluish dots on the black apical area.

Length excl. tegm. 18 to 21; exp. tegm. 50 to 62 millim.

Hab. Sylhet (*Brit. Mus.*). Sikhim (*Ind. Mus.*). Darjiling (*Coll. Dist.*). Burma; Momeit (*Doherty*).—Cochin-China. Sumatra. Philippines.

1716. **Aphana caja**, *Walk.* (Aphæna) *List Hom.* ii, p. 278 (1851); *Stål* (Aphana), *Stett. ent. Zeit.* xxiv, p. 235 (1863); *Atkins. J. A. S. Beng.* liv, p. 146 (1885).

Head, pronotum, mesonotum, and sternum brownish-ochraceous; abdomen above sanguineous, with discal transverse black spots and transversely tomentosely-white at base; abdomen beneath dull red spotted with black; legs olivaceous-brown, more or less

annulated with pale olivaceous; posterior acetabulæ greyish; tegmina with about basal two-thirds reddish-ochraceous, irregularly spotted with fuscous, about five discal spots being much the largest, about apical third fuscous, with pale waved greenish suffusions, the principal spots being one on anterior and one on posterior margin; wings ochraceous, sanguineous at base and on anal area, the apex black, posterior margin fuscous, some black spots on basal half, a few minute white discal spots near middle, and some bluish dots on the black apical area.

Length excl. tegm. 18 to 21; exp. tegm. 59 to 62 millim.

Hab. North-western Province; Garwhal (*Coll. Dist.*). Sylhet (*Brit. Mus.*). Assam; Margherita (*Doherty*).

1717. **Aphana dimidiata**, *Hope* (Lystra), *Tr. Linn. Soc.* xix, p. 133, t. xii, f. 4 (1845); *Stål* (Aphana), *Stett. ent. Zeit.* xxiv, p. 232 (1863); *Atkins. J. A. S. Beng.* liv, p. 146 (1885).

I only know this species by the description and figure given by Hope, the first of which is reproduced :—

"Fuscous; head, thorax, and feet concolorous; basal half of tegmina virescent, sprinkled with numerous minute dull black spots, apices sub-orange-hyaline marked with cretaceous spots; basal half of wings greenish with the posterior part whitish, spotted black, apices fuscous, irrorated with virescent spots."

Length excl. tegm. $14\frac{1}{2}$; exp. tegm. 46 millim.

Hab. Sylhet.

Genus LYCORMA.

Lycorma, *Stål, Stett. ent. Zeit.* xxiv, p. 232 (1863); *Atkins. J. A. S. Beng.* liv, p. 148 (1885).

Type, *L. imperialis*, White.

Distribution. Oriental Region and China.

Head somewhat protuberant, the protuberance very short and reflexed; face furnished distinctly upward, and at the base more narrowly, with two parallel obtuse ridges, sometimes obliterated beneath the middle; vertex truncated at base, posterior angles not produced; pronotum finely medially carinate; anterior femora not amplified at apices; posterior tibiæ armed with four or five spines; tegmina and wings generally as in the preceding genus *Aphana*.

1718. **Lycorma imperialis**, *White* (Aphana), *A. M. N. H.* xvii, p. 330 (1846); *Westw.* (Aphæna) *Cab. Or. Ent.* p. 74, t. xxxvi, f. 4 (1848); *Stål* (Lycorma), *Stett. ent. Zeit.* xxiv, p. 232 (1863); *Atkins. J. A. S. Beng.* liv, p. 148 (1885).
Var. placabilis, *Walk.* (Aphæna) *List Hom. Suppl.* p. 46 (1858).

Head and thorax above olivaceous-ochraceous; abdomen above piceous, the lateral and segmental margins more or less ochraceous; head beneath, sternum, legs, and rostrum castaneous-brown;

abdomen beneath a little paler than above, the ochraceous lateral margins broader and containing large segmental piceous spots; tegmina olivaceous-green, about apical third with the venation closely reticulate, the small reticulate areas black, the basal two-thirds with rounded spots on costal area and with spots or broken

Fig. 89.—*Lycorma imperialis.*

transverse fasciæ black; wings with about basal half purplish-red spotted with black, with a transverse bright bluish-green fascia before apical area, which is piceous.

In the var. *placabilis*, Walk., the tegmina are more or less testaceous, not green, and with the transverse fascia to the wings somewhat greyish-white, not bluish-green.

Length excl. tegm. 16½ to 21; exp. tegm. 54½ to 61 millim.

Hab. Sylhet. Sikhim (*Ind. Mus.*). Assam; Sadia, Noa Dihing, and Nága Hills (*Chennell*). Darjiling (*Coll. Dist.*).

1719. **Lycorma punicea**, *Hope* (Lystra), *Tr. Linn. Soc.* xix, p. 133, t. xii, f. 5 (1843); *Stål* (Lycorma), *Stett. ent. Zeit.* xxiv, p. 232 (1863); *Atkins. J. A. S. Beng.* liv, p. 149 (1885).
Aphæna delectabilis, *Walk. List Hom. Suppl.* p. 44 (1858).

Head and thorax above castaneous-red; abdomen piceous head beneath, sternum, and legs castaneous, anterior legs and intermediate tibiæ more or less piceous; tegmina testaceous, excluding about basal fourth the reticulate and other cellular areas are black, giving the tegmina a much darker appearance, the basal and costal areas with scattered and somewhat large black spots; wings with about basal half purplish-red spotted with black, a transverse greyish fascia before apical area, which is piceous.

Length excl. tegm. 12 to 12½; exp. tegm. 40 to 42 millim.

Hab. Sylhet. Assam; Dikrang Valley (*Ind. Mus.*).—China.

Like a small variety of the preceding species (*L. imperialis*), but differing by its much smaller size and by the black cellular areas of the tegmina extending over three-fourths of their area.

1720. **Lycorma delicatula**, *White* (Aphæna), *A. M. N. H.* xv, p. 37 (1845); *Stål* (Lycorma), *Stett. ent. Zeit.* xxiv, p. 232 (1863); *Atkins. J. A. S. Beng.* liv, p. 150 (1885).
Var. operosa, *Walk.* (Aphæna) *List Hom. Suppl.* p. 46 (1858).

Head and thorax above brownish-olivaceous; abdomen above piceous, much cretaceously tomentose and with the segmental margins a little ochraceous; body beneath and legs piceous, anal appendage sanguineous; tegmina pale greenish or greenish-brown, with somewhat large scattered black spots, of which about six are situate on the costal area, about apical third with the venation closely reticulate and the reticulate areas piceous, thus giving it a much darker appearance; wings with more than basal half sanguineous spotted with black, a pale bluish-green transverse macular fascia before apical area, which is black.

Length excl. tegm. 15 to 15½; exp. tegm. 41 to 53 millim.

Hab. Assam; Sibsagar? (*fide Atkinson*). China.

I include this species on a doubtful locality of Atkinson, though there is every probability that it occurs in the confines of British India. It is allied to *L. imperialis*, from which it differs by the little more elevated cephalic process and the smaller spots to the tegmina and wings. The var. *operosa*, Walk., differs only in the more testaceous hue of the tegmina, and the greyish not bluish-green macular transverse fascia to the wings.

1721. **Lycorma iole**, *Stål, Stett. ent. Zeit.* xxiv, p. 234 (1863); *Atkins. J. A. S. Beng.* liv, p. 150 (1885).

"Blackish; the lateral posterior blotch on the vertex, thorax, lateral margins of mesonotum, and the tegmina more or less purely green-olivaceous; the tegmina with 23–28 largish black spots, the nearly third apical area black, green-veined; wings coccineous, with 8–10 black spots, piceous behind the middle, and there with a shortened fascia green or bluish-green; anal valvules in female sanguineous."

Length excl. tegm. 17; exp. tegm. 52 millim.

Hab. "India orientalis" (*Stockholm Mus.*).

Closely allied to *L. delicatula*, but larger (this remark of Stål's is evidently based on an examination of small specimens of *delicatula*), cephalic process less prominent, and spots on tegmina and wings larger.

I have not seen this species, and have reproduced Stal's description.

Genus **EUPHRIA.**

Euphria, *Stål, Stett. ent. Zeit.* xxiv, p. 232 (1863); *Atkins. J. A. S. Beng.* p. 150 (1858).

Type, *E. aurantia*, Hope.

Distribution. Oriental and Malayan Regions.

Head with a very slender, acute, cephalic protuberance, reflexed

or erect; face distinctly narrowed upward, abruptly narrower at base, with two or three parallel elevated ridges; vertex broadly sinuate at base; pronotum obscurely or scarcely medially carinate; anterior femora slightly ampliated above at apices; posterior tibiæ with four spines, unarmed above at base.

1722. **Euphria aurantia**, *Hope* (Aphana), *Tr. Linn. Soc.* xviii, p. 443, t. xxxi, f. 2 (1841); *Stål* (Euphria), *Stett. ent. Zeit.* xxiv, p. 232 (1863); *Atkins. J. A. S. Beng.* liv, p. 151 (1885).

Aphana aurora, *Hope, Tr. Linn. Soc.* xix, p. 133, t. xii, f. 2 (1845); *Stål* (Euphria), *Stett. ent. Zeit.* xxiv, p. 232 (1863); *Atkins. J. A. S. Beng.* liv, p. 152 (1885).

Head, thorax above, sternum, and legs more or less virescent; abdomen orange-yellow, above very thickly clothed with cretaceous pile; tegmina pale green with a few obscure paler spots, and a number of smaller cretaceous spots which are larger and in regular series on the costal area; wings orange-yellow, green at basal angle, and with a few scattered cretaceous spots; tegmina with the extreme outer margin and a few small spots on apical area of inner margin black, the last are thickly cretaceously tomentose in the specimen figured; beneath both the apical

Fig. 90.—*Euphria aurantia.*

areas of tegmina and wings are cretaceously tomentose, and the obscure pale spots to tegmina above are very distinct beneath.

In old or rubbed specimens the tegmina are dull dark orange-yellow, exhibiting the obscure paler spots, but with all the cretaceous spots obliterated; the form figured by Hope as *aurantia* is somewhat intermediate in this respect. The specimen figured and described above is a fresh specimen. Other specimens have the tegmina virescent with some of the longitudinal veins orange-yellow; but this character is purely varietal and often confined to only one of the tegmina.

Length excl. tegm. 19 to 22; exp. tegm. 63 to 70 millim.

Hab. Sikhim (*Ind. Mus.*). Darjiling (*Ind. Mus.*). Assam; N. Khási and Nága Hills (*Chennell*).

1723. **Euphria apicata**, sp. n.

Allied to the preceding species, but with the whole apex of the tegmina pale testaceous, with its inner margin waved and fuscous.

Body and legs dull dark ochraceous; tegmina dull virescent, with obscure dull paler spots, which are much more visible beneath; wings pale reddish-orange; both tegmina and wings are suffused with pale testaceous beneath, the tegmina on basal area, and the wings more extensively and more maculately so.

Length excl. tegm., ♂, 21; exp. tegm. 70 millim.

Hab. Sikhim (*Ind. Mus.*).

This description is taken from a single somewhat faded specimen in the Indian Museum; but however the colour may vary in fresh specimens, the testaceous apical area of the tegmina with its internal fuscous fascia will render the species easy to distinguish. The cephalic protuberance is also considerably more robust than in *E. aurantia.*

1724. **Euphria submaculata**, *Westw.* (Aphæna) *Dunc. Nat. Libr.* i, p. 284, t. xxiv, f. 1 (1840); *Stål* (Euphria), *Stett. ent. Zeit.* xxiv, p. 232 (1863); *Atkins. J. A. S. Beng.* liv, p. 151 (1885).

Aphana resima, *Stål, Öfv. Vet.-Ak. Förh.* 1855, p. 190.

Head, thorax above, sternum, and legs dull ochraceous; lateral margins of pronotum narrowly black; abdomen above piceous or black, segmental margins ochraceous, the whole more or less covered with cretaceous pile; abdomen beneath dull testaceous, abdominal margins piceous; apices of tibiæ and the tarsi piceous or black, under surfaces of the tibiæ more or less virescent; tegmina above dull red, somewhat thickly covered with cretaceous fasciate spots, those on costal area more regular and maculate, extreme apical margin and some spots on apical area of posterior margin black; tegmina beneath much brighter red, the cretaceous spots above only palely visible beneath, but with an additional cluster of small cretaceous spots on disk near apex, spots on costal area bluish-black; wings above piceous, anal and posterior areas somewhat broadly, and apical margin narrowly, cretaceous, the whole surface with somewhat large scattered cretaceous spots; wings beneath as above, but with black spots on basal area, and cretaceous spots on apical area, which is also more or less suffused with the same colour; mesonotum either obsoletely or very distinctly tricarinate.

This description is taken from a fresh and bright-coloured specimen; in most others which I have examined, and as in Westwood's figure (*supra*), the apical area of the wings is brownish-ochraceous.

Length excl. tegm. 20 to 22; exp. tegm. 65 to 76 millim.

Hab. Sikhim (*Ind. Mus.*). Darjiling (*Coll. Dist.*).

1725. **Euphria consanguinea**, sp. n.

Allied to the preceding species (*E. submaculata*), but differing in the following particulars:—The tegmina above are without the cretaceous spots, which are replaced by darker red, narrow, irregular, transverse fasciæ; beneath the bluish-black spots on costal area are practically absent; wings with the black coloration confined to about basal fourth; anterior tibiæ and tarsi black.

Structural specific characters in this and allied genera are frequently difficult to discern, and individual judgments as to the separation of species must frequently be formed, as in the study of Lepidoptera.

Length excl. tegm. 15½ to 20½; exp. tegm. 52 to 70 millim.

Hab. Sylhet (*Coll. Dist.*). Assam; Nága Hills (*Doherty*, *Coll. Dist.*).

1726. **Euphria burmanica**, sp. n.

Body and legs ochraceous, vertex of head and legs a little rosaceous; apex of rostrum, narrow lateral margins of pronotum, anterior tibiæ, apices of intermediate and posterior tibiæ, and all the tarsi black or piceous; abdomen above more or less covered with cretaceous pile; tegmina above and beneath rosy-red, costal margin with linear spots, outer margin (which is irregularly maculate) and some small spots on apical area of posterior margin black; subobsolete cretaceous spots on costal and apical areas, which are much more distinct beneath; wings a little more dark rosaceous than tegmina, the apex somewhat ochraceous, the anal area and somewhat large scattered spots cretaceous-white above, more obscure beneath; mesonotum somewhat obsoletely tricarinate in type, *a non-constant specific character in this genus*; cephalic process extending backward to about middle of pronotum; rostrum just passing the posterior coxæ.

Length excl. tegm. 21; exp. tegm. 72 millim.

Hab. North India (*Brit. Mus.*). Burma; Karen Hills (*Doherty*, *Coll. Dist.*).

1727. **Euphria relata**, sp. n.

Head and thorax above ochraceous; lateral margins of pronotum and margins of mesonotum (excluding posterior angle) black; abdomen above black, thickly covered with cretaceous pile; head beneath, sternum, and legs reddish-ochraceous, anterior and intermediate tibiæ and tarsi black; abdomen beneath cretaceously pilose; tegmina above testaceous-red, finely cretaceously pilose, the costal, outer, and apical area of posterior marginal areas testaceous, the first and last spotted with white, the outer with its extreme margin maculately olivaceous-green; the costal vein and a few spots on costal area black; tegmina beneath purplish-red, with a cluster of white spots on apical area; wings above orange-

red, with about basal third black, spotted with cretaceous-white, especially on black basal area, anal and basal half of posterior area greyish; wings beneath with the basal black area without white spots, and the whole apical and posterior marginal areas broadly greyish; rostrum just passing posterior coxæ; mesonotum not or very obsoletely carinate.

Length excl. tegm. 21; exp. tegm. 73 millim.

Hab. Tenasserim; Donat Range (*de Nicéville, Brit. Mus.*).

1728. **Euphria dissimilis**, sp. n.

Head sanguineous; pronotum black, its margins narrowly sanguineous; mesonotum black, a large discal spot and its apical angle sanguineous; abdomen black, the segmental margins sanguineous, and more or less thickly covered with cretaceous pile; head beneath, sternum, and legs sanguineous; anterior femora (excluding apex), anterior tibiæ (excluding base), apices of intermediate and posterior tibiæ, and all the tarsi black; abdomen beneath black, the segmental margins ochraceous; tegmina above thickly and almost uniformly cretaceously tomentose, posterior half of costal and the whole of outer marginal areas and some spots at apex of posterior margin ochraceous, some black spots on basal half of costal marginal area; tegmina beneath black, with some red suffusions, outer area ochraceous, upper apical area cretaceous; wings above black, margins, anal area, and scattered spots cretaceous-white, beneath with the discal spots much more obsolete and the cretaceous margins much broader; cephalic process with its apical area piceous; mesonotum not or very obsoletely carinate; rostrum with its apical area black, the apex just passing the posterior coxæ.

Length excl. tegm. 19 to 24; exp. tegm. 55 to 75 millim.

Hab. Tenasserim; Donat Range (*de Nicéville, Brit. Mus.*).

1729. **Euphria amabilis**, *Hope* (Aphana), *Tr. Linn. Soc.* xix, p. 132, t. xii, f. 1 (1845); *Stål* (Euphria), *Stett. ent. Zeit.* xxiv, p. 232 (1863); *Atkins. J. A. S. Beng.* liv, p. 152 (1885).
Aphæna lectissima, *Walk. List Hom. Suppl.* p. 45 (1858); *Atkins.* (Euphria) *J. A. S. Beng.* liv, p. 151 (1885).

Body and legs brownish-ochraceous; tegmina dull dark ochraceous or greenish-ochraceous, costal area somewhat confluently spotted with cretaceous, apical costal, outer, and apical posterior marginal areas finely spotted with black, the disk with some somewhat large and irregular greenish spots, in some specimens obsolete except on apical area; tegmina beneath pale purplish-red, the apical area as above with pale spots; wings with about basal two-thirds bright purplish-red, remaining apical area greyish or virescent; central disk of pronotum and anterior disk of mesonotum medially finely carinate; rostrum passing posterior coxæ.

Length excl. tegm. 21 to 23; exp. tegm. 68 to 73 millim.

Hab. "North India" (*Brit. Mus.*). Sylhet; Sikhim (*Ind. Mus.*). Assam; Nága Hills (*Doherty*).

Hope's figure (*supra*) was apparently taken from a very bright specimen, with the discal spots on upper surface of tegmina white, and with three transverse spots to pronotum, and one at base of vertex, pale ochraceous; in Walker's type of *lectissima* these are faintly visible. The species is a variable one, but always to be easily recognized by the distinct and beautiful coloration of the wings.

Genus KALIDASA.

Phoronis, *Stål, Stett. ent. Zeit.* xxiv, p. 233 (1863), nom. præocc.
Kalidasa, *Kirk. Entomologist,* xxxiii, p. 243 (1900), nom. n.

Type, *K. sanguinalis*, Westw.

Distribution. Oriental Region and China.

Head emitting from the base of the face a long, slender, mobile, reflexed process (in dried specimens easily and frequently mutilated); face a little narrower at its anterior half, abruptly narrowed at base, furnished with two obtuse parallel ridges, which are often obliterated, lateral margins slightly sinuate on posterior half; vertex truncate at base; pronotum very finely medially carinate; anterior femora distinctly ampliated above near apices; posterior tibiæ with four spines and with a tubercle on their upper surface at base.

1730. **Kalidasa sanguinalis**, *Westw.* (Aphana) *A. M. N. H.* (2) vii, p. 208 (1851); *Stål* (Phoronis), *Stett. ent. Zeit.* xxiv, p. 233 (1863); *Kirk.* (Kalidasa) *Entomologist,* xxxiii, p. 243 (1900); *Melich. Hom. Faun. Ceylon,* p. 16, t. i, f. 3 (1903).

Head and thorax above pale testaceous; abdomen above testa-

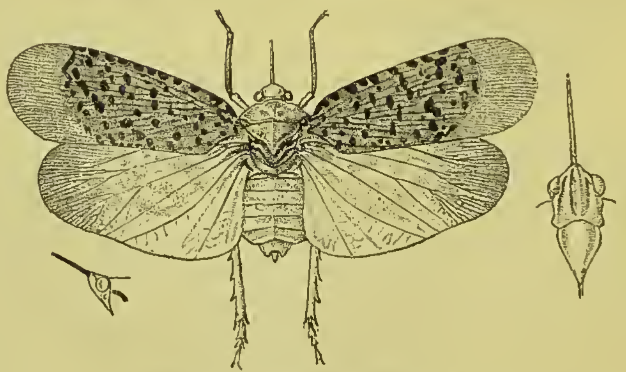

Fig. 91.—*Kalidasa sanguinalis.*

ceous, thickly cretaceously tomentose; head beneath and sternum pale testaceous; legs and abdomen beneath pale sanguineous;

cephalic process, lateral narrow margins of pronotum, anterior tibiæ and tarsi black; tegmina above reddish-testaceous, covered with numerous black spots, which are larger and more regular on costal area, outer marginal area broadly ochraceous, beneath as above, but much tomentosely suffused with cretaceous; wings cretaceous-white, the apical area and some obscure, waved, discal, broken fasciæ pale brownish-ochraceous; pro- and mesonota distinctly finely medially carinate; rostrum passing posterior coxæ; cephalic process extending a little beyond pronotum.

Length excl. tegm. 19; exp. tegm. 60 millim.

Hab. Ceylon (*Green*).

1731. **Kalidasa nigro-maculata**, *Gray* (Fulgora (Aphæna)), *Griff. An. Kingd., Ins.* ii, p. 260, t. xc, f. 6; t. cxxxviii, f. 1, *a–c* (1832); *Guér.* (Aphæna) *Voy. Bélang.* p. 457 (1834); *Westw.* (Aphana) *Tr. Linn. Soc.* xviii, p. 149 (1841); *Stål* (Phoronis), *Stett. ent. Zeit.* xxiv, p. 233 (1863); *Atkins. J. A. S. Beng.* liv, p. 153 (1885).

Head reddish-brown, cephalic process black; thorax greenish-brown; abdomen above black, segmental margins narrowly yellow and more or less cretaceously tomentose; abdomen beneath yellow; head beneath, sternum, and legs pale castaneous, anterior tibiæ and tarsi black; tegmina purplish-brown, the costal, outer, and apical posterior marginal areas olivaceous, the first anteriorly margined and the other two reticulated with black; wings bluish-green, the anal and apical areas and large discal spots black; pro- and mesonota faintly medially carinate; rostrum extending considerably beyond the posterior coxæ.

Length excl. tegm. 21; exp. tegm. 55 millim.

Hab. Andaman Islands (*Ind. Mus. & Coll. Dist.*).—Cochin China.

1732. **Kalidasa paulinia**, *Sign.* (Aphæna) *Ann. Soc. Ent. Fr.* 1862, p. 123, t. i, f. 6; *Atkins.* (Phoronis) *J. A. S. Beng.* liv, p. 154 (1885).

Head, thorax above, and abdomen beneath brownish-ochraceous; head beneath, sternum, and legs reddish-ochraceous or pale castaneous; narrow lateral margins of pronotum, two small rounded spots on posterior area of mesonotum, abdomen above, anterior tibiæ and tarsi black; last three segments of abdomen above cretaceously tomentose, the segmental margins narrowly ochraceous; tegmina testaceous-red, the costal, outer, and apical posterior marginal areas ochraceous, the first anteriorly margined and the other two reticulated with black; wings pale fuscous, a little bluish-green near base, the anal and apical areas and large discal spots piceous; pro- and mesonota distinctly but finely medially carinate; rostrum considerably passing the posterior coxæ.

Length excl. tegm. 20; exp. tegm. 56 millim.

Hab. Tenasserim (*fide Atkinson*).—Cochin China.

Stål preferred to regard *K. paulinia* as a colour-variety of the preceding species. I have followed Signoret and Atkinson in treating it as distinct.

1733. **Kalidasa albiflos**, *Walk.* (Aphæna) *List Hom.* ii, p. 280 (1851); *Atkins.* (Aphana?) *J. A. S. Beng.* liv, p. 148 (1885).

Head above ochraceous; thorax above olivaceous; lateral margins of pronotum narrowly ochraceous and inwardly black; abdomen above black, segmental margins ochraceous, posterior segments cretaceously tomentose; body beneath and legs testaceous-red; anterior and intermediate tibiæ and tarsi and sometimes the posterior tibiæ (partly) black; tegmina piceous, much mottled with greyish fasciate-like spots, apical or outer area brownish-testaceous and finely reticulate, beneath this area is usually finely greyishly tomentose; wings piceous, the apical, posterior, and anal areas greyish-white, in some specimens very pale fuscous-brown, the piceous area mottled with bluish-grey irregular spots; pronotum subobsoletely medially carinate, the mesonotum with the carination practically obsolete; rostrum very long, reaching the penultimate abdominal segment.

Length excl. tegm. 17 to 20; exp. tegm. 47 to 55 millim.

Hab. Malabar (*Brit. Mus*). Bombay (*Leith & Dixon, Coll. Dist.*).

1734. **Kalidasa dives**, *Walk.* (Aphæna) *List Hom.* ii, p. 280 (1851); *Atkins.* (Aphana?) *J. A. S. Beng.* liv, p. 147 (1885).
Euphria (?) walkeri, *Atkins. J. A. S. Beng.* liv, p. 152 (1885).

Greatly resembling the preceding species (*K. albiflos*), but smaller, the rostrum longer and reaching the base of the abdominal anal appendage; sternum with piceous suffusion; tegmina with the ground-colour reversed, being pale greenish-testaceous with very numerous black spots, many of them fasciate in appearance, apical or outer area as in *K. albiflos*, and wings scarcely differing from those of that species.

Length excl. tegm. 15; exp. tegm. 42 millim.

Hab. Malabar (*Brit. Mus.*).

Genus GEBENNA.

Gebenna, *Stål, Tr. E. S.* (3) i, p. 582 (1863); *id. Hem. Afr.* iv, p. 135 (1866); *Atkins. J. A. S. Beng.* liv, p. 154 (1885).

Type, *G. sylvia*, Stål.

Distribution. British India.

Head moderately broad, a little narrower than the pronotum, not protuberant; vertex transverse, its anterior margin straight, posterior margin broadly sinuate; face subquadrate, moderately amplified on both sides at junction with clypeus, median area amplified upward, broadly subtruncate at apex, a little gibbous

before apical margin of vertex, not reflexed; clypeus ecarinate; second joint of antennæ transverse, produced upward from insertion; pronotum medially unicarinate, roundly produced at apex behind vertex: mesonotum about half longer than pronotum; tegmina scarcely ampliated but rounded at apex, costal margin straight, longitudinal veins rarely furcate, small transverse veins remotely scattered throughout the entire tegmina; wings remotely transversely veined beyond the middle; legs simple; posterior tibiæ with four spines, their bases neither spinose nor tuberculate.

1735. **Gebenna sylvia**, *Stål, Tr. E. S.* (3) i, p. 583 (1863); *Atkins. J. A. S. Beng.* liv, p. 155 (1885).

Head, thorax above, sternum, and legs ochraceous; rostrum piceous; pronotum a little infuscate on each side of central carination and with small black spots on each lateral area; mesonotum blackly punctate on disk, some small irregular black spots on anterior margin, two spots on each lateral margin before apex, and a central line on apex black; abdomen above black, with three longitudinal discal fasciæ and the segmental margins between them ochraceous; face somewhat thickly blackly punctate; anterior and intermediate legs with the femora spotted and the tibiæ annulated with black; abdomen beneath ochraceous, the lateral margins and transverse spots at segmental margins black; tegmina from base to a little beyond middle purplish-red, remotely and irregularly blackly-punctate, costal marginal area virescent, apical area subhyaline, veins fuscous and with a few subconfluent fuscous spots; wings vitreous, palely virescent at base, where they are streaked and apically margined with piceous, veins piceous; pronotum with a medial acute central carination, on each side of which is a broad longitudinal ridge; mesonotum acutely medially carinate and with a narrow curved ridge on each side of disk; rostrum passing the posterior coxæ; posterior tibiæ with four spines.

Fig. 92.—*Gebenna sylvia.*

Length excl. tegm. 13 to 17; exp. tegm. 39 to 47 millim.

Hab. "North India" (*Brit. Mus.*). Nilgiri Hills (*Hampson, Coll. Dist.*).

Genus **POLYDICTYA.**

Polydictya, *Guér. Icon. Règne Anim., texte Ins.* p. 358 (1830–4); *Stål, Hem. Afr.* iv, p. 135 (1866); *Atkins. J. S. Beng.* liv, p. 155 (1885).

Thaumastodictya, *Kirk. J. Bomb. Nat. Hist. Soc.* 1902, p. 307.

Type, *P. basalis*, Guér.

Distribution. Oriental and Ethiopean Regions.

Head broad, vertex about four times as broad as the eyes; entire tegmina more or less densely reticulate; wings reticulate to near base; anterior tibiæ sometimes moderately dilated; face obtusely rounded above, ampliated posteriorly, and distinctly broader than the clypeus; tegmina elongate, three or sometimes nearly four times longer than broad; spines to posterior tibiæ variable in number.

Melichar (Homop. Faun. Ceylon, p. 71, 1903) includes this genus in the Eurybrachydinæ, an innovation which I cannot follow.

1736. **Polydictya basalis**, *Guér. Icon. Règne Anim., texte Ins.* p. 359 (1830-4); *Hope* (Eurybrachys), *Tr. Linn. Soc.* xix, p. 134, t. xii, f. 6 (1845); *Stål* (Polydictya), *Öfv. Vet.-Ak. Förh.* 1862, p. 500; *Atkins. J. A. S. Beng.* liv, p. 155 (1885).

Head, pronotum, sternum, and rostrum brownish-ochraceous; mesonotum, legs, and abdomen beneath brown or pale castaneous; apices of anterior and intermediate tibiæ and the tarsi piceous; abdomen above purplish-red; tegmina above brownish-ochreous, the reticulate venation ochraceous, and with a basal, dark olivaceous, transverse fascia, beneath (excluding apical area) the tegmina have

Fig. 93.—*Polydictya basalis.*

a pale olivaceous hue; wings fuscous-brown, basal anal area purplish-red, a pale green longitudinal fascia more or less margined posteriorly with black at base of costal area; pronotum with an obsolete discal broad carination; rostrum reaching but not passing the posterior coxæ; posterior tibiæ with five spines.

Length excl. tegm. 21; exp. tegm. 56 to 60 millim.

Hab. Sylhet (*Brit. Mus.*).

Note. Stål (Öfv. Vet.-Ak. Förh. 1862, p. 500) stated that the Bornean *P. uniformis*, Walk., was a synonym of this species. It is, however, quite distinct.

1737. **Polydictya negrito**, sp. n.

Head and pronotum greenish-stramineous; mesonotum, sternum, and legs brownish-ochraceous, apices of the femora olivaceous, anterior and intermediate tibiæ black, with a broad pale ochraceous annulation; anterior and intermediate tarsi black; abdomen purplish-red, its dorsal surface black on basal area; tegmina above brownish-ochraceous, the reticulate venation ochraceous, the costal and claval areas suffused with black, the first with four marginal ochraceous spots; beneath (excluding apical area) the tegmina are suffused with indigo-blue; wings pale fuscous-brown, the reticulate venation darker, with two elongate suboblique streaks at base pale indigo-blue, the uppermost reaching costal area; pronotum with a broad, subobsolete, medial carination; rostrum mutilated in specimen described; posterior tibiæ with six strong spines.

Length excl. tegm. 17½; exp. tegm. 46 millim.

Hab. Andaman Islands (*De Roepstorff*, *Coll. Dist.*).

Allied to *P. basalis* but smaller, tegmina shorter and indigo-blue beneath; anterior and intermediate tibiæ annulated; posterior tibiæ with six spines.

1738. **Polydictya affinis**, *Atkins. J. A. S. Beng.* lvii, p. 339 (1888).
Polydictya fervida, *Gerst. MT. Ver. Vorpomm.* xxvii, p. 25 (1896).

Head, thorax above, sternum, abdomen beneath, and rostrum tawny-yellow; legs coral-red; abdomen above with about basal half sanguineous, remainder ochraceous; tegmina above bluish-virescent for about basal third, thence very pale fuscous-brown, all the reticulate venation ochraceous, or near base greenish-ochraceous; beneath (excluding apical area) the tegmina are more or less suffused with pale bluish, somewhat distinctly blackly maculate near base; wings very pale fuscous semi-hyaline, the venation fuscous-brown, the base purplish-red; pronotum distinctly medially carinate on its posterior half; rostrum passing the posterior coxæ; posterior tibiæ with four spines.

Length excl. tegm. 16; exp. tegm. 55 to 58 millim.

Hab. Sikhim (*fide Atkinson*). Darjiling (*Coll. Dist.*).

1739. **Polydictya tricolor**, *Westw.* (Lystra) *Arc. Ent.* ii, p. 35, t. lvii, f. 4 (1845); *Walk.* (Polydictya) *List Hom.* ii, p. 290 (1851); *Atkins.* (Polydictya?) *J. A. S. Beng.* liv, p. 156 (1885).

Head ochraceous, with two piceous spots at base of vertex; pronotum black, with the lateral and posterior margins broadly testaceous; mesonotum black; abdomen above sanguineous, its extreme base narrowly somewhat piceous; face ochraceous; a large spot to clypeus and body beneath piceous; legs and abdominal anal appendage testaceous-red; tegmina with nearly basal half ochraceous, with two transverse series of black spots, the first near base, the second (three in number) at about one-third from base, remainder of tegmina uniformly fuscous-brown;

wings sanguineous, apical area broadly fuscous-brown, posterior margin very pale fuscous; pronotum distinctly medially carinate on its anterior half; rostrum reaching posterior coxæ; posterior tibiæ with four spines, the one nearest base very short.

Length excl. tegm. 13; exp. tegm. 45 millim.*

Hab. Assam. Darjiling (*O. Müller, Coll. Dist.*).

1740. **Polydictya krisna**, *Kirk.* (Polydictya) *J. Bomb. Nat. Hist. Soc.* xiv, 1902, p. 49, pl. A, f. 4; *id.* (Thaumastodictya) *ibid.* p. 307.

Head, thorax above, face, clypeus, and rostrum ochraceous; body beneath and legs fuscous-brown; abdomen above sanguineous, its disk slightly fuscous; the anal appendage ochraceous; tegmina with a little more than basal third stramineous much spotted with black, remainder with the close reticulate venation ochraceous, the reticulate areas piceous, beneath the tegmina are a little brighter than above; wings sanguineous, the apical area (broadly) and the posterior margin pale fuscous with the venation reddish-brown; pronotum broadly medially ridged on its anterior half; rostrum reaching or passing middle of abdomen; posterior tibiæ with five spines†.

Length excl. tegm. 13½; exp. tegm. 38 millim.

Hab. Ceylon; Kandy and Pundaluoya (*Green*).

The above description and dimensions are taken from a cotype kindly sent to me by Mr. Green: the species seems very closely allied to *P. pantherina*, Gerst., which I have not seen.

1741. **Polydictya pantherina**, *Gerst. MT. Ver. Vorpomm.* xxvii, p. 26 (1896).

Testaceous, somewhat shining; legs black; tegmina with multitudinous black spots, apex somewhat subinfuscate; wings posteriorly sanguineous, apically broadly fuscous.

Nearer to *P. tricolor*, Westw., by the less dense reticulation at base of tegmina, but widely removed by colour; vertex with a flat and uneven basal prominence; face convex, very shining, both sides with a large thin excavated impression, clypeus only deepened at base; rostrum extending to base of posterior femora; head, pro- and mesonota light yellowish-brown, the former with a continuous central keel; metanotum sanguineous; legs black, intermediate tibiæ before apices and posterior legs to a greater extent rust-colour; tegmina extended as in *P. tricolor*, nearly parallel, at the apices obliquely truncated, above dull ochraceous,

* These dimensions are taken from two specimens in my own collection. Westwood's figure represents a much larger specimen, and Atkinson gives the dimensions, probably taken from this figure, as 16½ and 56–57 millim.

† Kirkaldy (*supra*) describes the number of these spines as "6–7," but in one of his labelled cotypes, kindly sent me by Mr. Green, the number is distinctly only five. It may also be mentioned that in Kirkaldy's figure the reticulate venation to the wings has been omitted.

towards tips more luteous with numerous larger and smaller dull black spots, rather irregularly tessellated, so that the basal third appears less maculate, while in costal area there are four darker and more prominent spots, beneath to three-fifths of length more or less bone-yellow, the brown apical area suffused with sanguineous; posterior wings coloured as in *tricolor*, that is, with a decided bow-shaped border of the sanguineous basal area, but the brown apical area not blackish, but more umber-brown, caused by the light red reticulation on a dark ground-colour; abdomen piceous, spotted with sanguineous, the genital appendage rust-colour.

Length excl. tegm. 15; exp. tegm. 43 millim.

Hab. Ceylon (*fide* Gerstaecker).

I have not seen this species, and have given what seems to be the salient points in Gerstaecker's description.

In the 'Insecta Saundersiana' (p. 37), Walker has described a species (*Echetra semilutea*) to which he has appended the locality "Hindostan." This is a strange error, for not only is the specimen labelled "Pará," but in his description of the genus which he founded for the reception of the species he wrote: "This genus seems to replace in South America the Asiatic genus *Dichoptera*."

Subfamily II. EURYBRACHYDINÆ.

Eurybrachydida, *Stål, Hem. Afr.* iv, p. 129 (1866).
Eurybrachydina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 753.
Eurybrachidæ, *Melich.* (part.) *Hom. Faun. Ceylon*, p. 66 (1903).

Anal area of wings very rarely reticulate, if so, the clypeus convex without lateral ridges; posterior tibiæ without a mobile spur at apex; face broad, transverse, or almost equally long and broad, angularly ampliated on each side; anterior legs compressed, more or less dilated.

With many of the genera of this subfamily the specific differentiation is to be chiefly found in the coloration, as is the case with the Lepidoptera. The principal structural characters are detailed in the generic diagnoses and are very constant, and therefore in the specific descriptions it serves no useful purpose to repeat them.

Synopsis of Genera.

A. Eyes spinose beneath.
  a. Wings not or scarcely broader than tegmina.
    a. Face scarcely or only a little broader than pronotum.
      a'. Tegmina normal, without an apical filamentous appendage; posterior tibiæ with five spines .... EURYBRACHYS, p. 220.

a^2. Tegmina with an apical filamentous appendage; posterior tibiæ with four spines	ANCYRA, p. 225.
b. Face distinctly broader than pronotum.	
b'. Tegmina and wings moderately broad, the apex of the latter broadly rounded; posterior tibiæ with six spines	MESSENA, p. 226.
b^2. Tegmina very long and narrow, very much longer than wings, the apices of which are obtusely subangulate; posterior tibiæ with six spines	NICIDUS, p. 229.
b. Wings broader than tegmina.	
c. Vertex of head distinctly sinuate at base; median longitudinal area of wings dilated	THESSITUS, p. 230.
d. Vertex of head either very slightly sinuate at base or truncate; wings without a dilated area.	
e. Head (including eyes) about as broad as pronotum....................	LOXOCEPHALA, p. 232.
e'. Head (including eyes) considerably narrower than pronotum..........	NESIS, p. 233.
B. Eyes not spinose beneath	FRUTIS, p. 234.

Genus EURYBRACHYS.

Eurybrachys, *Guér. Voy. Bélang. Ind.-Orient.* p. 475 (1834); *Spin. Ann. Soc. Ent. Fr.* 1839, p. 367; *Stål, Rio Jan. Hem.* ii, p. 67 (1858); *id. Stett. ent. Zeit.* xxiv, p. 245 (1863); *Atkins. J. A. S. Beng.* lv, p. 13 (1886).

Type, *E. lepelletieri*, Guér.

Distribution. Oriental and Malayan Regions.

Wings moderate in size, not or scarcely broader than the tegmina; head very broad, slightly prominent before the eyes, genæ narrow, antennæ short cylindrical, front about as broad or only slightly broader than the pronotum, eyes beneath distinctly spinose; tegmina with the clavus very broad at apex; posterior tibiæ with five spines.

A. *Wings white, their apical areas unspotted.*

1742. **Eurybrachys lepelletieri**, *Guér. Voy. Bélang. Ind.-Orient.* p. 476 (1834); *Spin. Ann. Soc. Ent. Fr.* 1839, p. 369; *Atkins. J. A. S. Beng.* lv, p. 15 (1886).

Head, pronotum, mesonotum, and abdomen above and beneath ochraceous; metanotum, base of abdomen, sternum, and legs purplish-red; rostrum, posterior tibiæ and tarsi, and transverse fasciæ to abdomen beneath black; tegmina greenish-ochraceous (in faded or spirit-specimens almost ochraceous), with a spot at base and a transverse fascia near base rosy-red, on apical half there are two curved transverse fasciæ which are more ochraceous

and less red, the apical marginal area greyish; wings creamy-white; vertex with two foveæ, somewhat wide apart; pronotum with a transverse series of four foveate spots, the two central ones somewhat contiguous; mesonotum with four foveate spots, the two central ones widest apart; rostrum almost reaching the posterior coxæ; posterior tibiæ with the basal spine smallest.

Fig. 94.
Eurybrachys lepelletieri.

Length excl. tegm. 10 to 11; exp. tegm. 21 to 25 millim.

Hab. Bengal, Bombay (*Coll. Dist.*). Nilgiri Hills (*Hampson*).

1743. **Eurybrachys venusta**, *Stål, Stett. ent. Zeit.* xxiv, p. 245 (1863); *Atkins. J. A. S. Beng.* lv, p. 14 (1886).

Head and pronotum olivaceous-green; lateral and posterior margins of pronotum, mesonotum, metanotum, sternum, and legs dull purplish-red; abdomen ochraceous, apically thickly furnished with waxy-white efflorescence, beneath with transverse black fasciæ; posterior tibiæ more or less infuscate or piceous; tegmina with about basal half olivaceous-green with paler spots, margined outwardly and posteriorly with dull reddish, the same colour at extreme base, remaining area of tegmina dull greyish with the venation subolivaceous, tegmina beneath with the basal half dull red, remaining area more or less cretaceous, the venation darker; wings cretaceous-white, the venation very pale ochraceous, extreme base sanguineous; tegmina short and broad, about twice longer than broad.

Length excl. tegm. 9 to 10; exp. tegm. 20 to 25 millim.

Hab. Nilgiri Hills (*fide Stål*). Travancore (*Coll. Dist.*).

1744. **Eurybrachys manifesta**, sp. n.

Head (including face) smooth shining ochraceous, vertex with two discal indentations; pronotum ochraceous, its base sanguineous; mesonotum sanguineous; abdomen ochraceous, its base, sternum, and legs sanguineous; rostrum, posterior tibiæ and tarsi fuscous; some transverse discal fasciæ to abdomen beneath piceous; tegmina greyish, with about basal half (excluding inner and extreme costal margins) rosy-red, somewhat obsoletely spotted with ochraceous, the whole of the venation ochraceous; wings greyish white, a little rosy-red on basal area, the venation ochraceous; rostrum robust, reaching the posterior coxæ; abdomen broad, its lateral margins prominently convexly waved; anal valves large, broad, and spatular.

Length excl. tegm. 9; exp. tegm. 22 millim.

Hab. Nilgiri Hills (*Hampson, Coll. Dist.*). Coonoor (*Davison, Brit. Mus.*).

1745. **Eurybrachys apicata**, *Dist. Tr. E. S.* 1892, p. 281.

Body and legs dull sanguineous; head (excluding eyes) pale ochraceous; posterior tibiæ a little infuscate; abdomen (in typical specimen) in somewhat mutilated condition, but beneath clearly seen to be black with ochraceous segmental margins; tegmina pale olivaceous-green, the extreme base and a broad transverse fascia at apex dull purplish-red; wings pale greyish, with nearly the basal half dull purplish-red.

Length excl. tegm. 8; exp. tegm. 18 millim.

Hab. "India" (*Coll. Dist.*).

I only know this very distinct species by a single specimen in somewhat mutilated condition, and labelled simply "India," as in bygone days was a too frequent practice.

B. *Wings white, their apical areas with black transverse spots.*

1746. **Eurybrachys spinosa**, *Fabr.* (Cicada) *Ent. Syst. Suppl.* p. 520 (1798); *Coqueb. Ill.* ii, p. 35, t. ix, f. 4 (1799); *Fabr.* (Lystra) *Syst. Rhyng.* p. 58 (1803); *Spin.* (Eurybrachys) *Ann. Soc. Ent. Fr.* 1839, p. 369; *Atkins. J. A. S. Beng.* lv, p. 15 (1886).

A specimen in my collection, which I identify as this species, has the head, pronotum, mesonotum, and abdomen above and beneath ochraceous; about apical half of abdomen above, apex of abdomen beneath, metanotum, sternum, and legs purplish-red, posterior tibiæ and tarsi black; tegmina virescent, with three greenish-white transverse fasciæ, the basal fascia shortest and confined to the posterior half of tegmina, and an elongate transverse black spot near apex of posterior margin (Coquebert's figure exhibits two transverse spots); wings creamy-white, with two transverse black spots on apical area; structural characters apparently as in *E. lepelletieri*, Guér.

Length excl. tegm. 8; exp. tegm. 16 millim.

Hab. Madras (*Coll. Dist.*).

I am in doubt as to the above being the species described by Fabricius, but hesitate to describe it as new. It agrees in the colour of the tegmina and the absence of apical black dots as described by Burmeister, but the posterior tibiæ are black, and therefore the legs not wholly red as described by Fabricius and figured by Coquebert. Neither of these authors described the wings.

1747. **Eurybrachys tomentosa**, *Fabr.* (Cicada) *Syst. Ent.* ii, p. 324 (1775); *id.* (Lystra) *Syst. Rhyng.* p. 60 (1803); *Amy. & Serv.* (Eurybrachys) *Hém.* p. 517 (1843); *Stål, Hem. Fabr.* ii, p. 100 (1869); *Atkins. J. A. S. Beng.* lv, p. 14 (1886).

Lystra bimaculata, *Fabr. Syst. Rhyng.* p. 60 (1803); *Stål* (Eurybrachys), *Hem. Fabr.* ii, p. 100 (1869); *Atkins. J. A. S. Beng.* lv, p. 14 (1886).
Eurybrachys fraterna, *Stål, Öfv. Vet.-Ak. Förh.* 1858, p. 450; *Melich. Hom. Faun. Ceylon*, p. 67, t. iii, f. 15 (1903).

Head, pronotum, and mesonotum greenish-olivaceous; metanotum, sternum, and legs purplish-red; abdomen fuscous or brownish-ochraceous, in fresh specimens studded above with small tufts of, and the apex broadly clothed with, white waxy efflorescence; posterior tibiæ and tarsi black or fuscous; transverse fasciæ to abdomen beneath black; tegmina olivaceous-green, with small scattered spots and oblique transverse discal fasciæ flavescent, the apical marginal area with a double series of small shining black spots and a larger spot near apex of posterior margin; wings creamy-white, with two obliquely transverse black fasciæ on apical area.

Length excl. tegm. 6 to 9; exp. tegm. 18 to 25 millim.

Hab. Bombay (*Dixon*). Nilgiri Hills (*Hampson*). Bangalore (*Cameron*). Ceylon (*Green*).

This is a most variable—both in size and colour—species to identify. Typical and fresh forms are as above described, and as correctly described but inefficiently figured by Melichar (*supra*), whose artist has made the fasciæ of the tegmina to appear as black; in some specimens these fasciæ are testaceous, in others macular and much broken. In faded specimens the tegmina are ochraceous, with the fasciæ only a little paler and subobsolete. I am satisfied that *tomentosa*, Fabr., *bimaculata*, Fabr., and *fraterna*, Stål, are conspecific; whether there may not be another closely allied species among the other small forms I include is at least possible, though I think improbable. There appears to be a variety with the legs concolorous.

C. *Wings infuscated or fuscous, their apical areas with a transverse white fascia.*

1748. **Eurybrachys apicalis**, *Walk.* (Issus) *List Hom.* ii, p. 368 (1851); *Stål* (Eurybrachys) *Öfv. Vet.-Ak. Förh.* 1862, p. 488.
Eurybrachys subfasciata, *Walk. List Hom.* ii, p. 391 (1851); *Atkins. J. A. S. Beng.* lv, p. 17 (1886).

Head and pronotum dull stramineous or ochraceous; mesonotum testaceous or fuscous-testaceous; abdomen above, sternum, and legs testaceous, or in faded specimens ochraceous; abdomen beneath and posterior tibiæ and tarsi black, the first with the lateral and narrow segmental margins ochraceous; rostrum piceous; tegmina pale tawny-brown, sometimes a little darkly speckled on basal half, apical area with two prominent black spots—one on anterior, the other on posterior margin (the uppermost sometimes absent)—and a series of minute black spots

on the apical marginal area; wings very pale fuscous, the apical area black or dark fuscous, containing a transverse white fascia.

Length excl. tegm. $5\frac{1}{2}$ to $6\frac{1}{2}$; exp. tegm. 15 to 18 millim.

Hab. North Bengal (*Brit. Mus.*). Bombay (*Dixon*). Bangalore (*Coll. Dist.*). Ceylon; Peradeniya (*Green*).

1749. **Eurybrachys dilatata,** *Walk. List Hom.* ii, p. 392 (1851); *Melich. Hom. Faun. Ceylon*, p. 67 (1903).

Very closely allied to the preceding species (*E. apicalis*), but with the abdomen above as beneath, viz., black with the lateral and the segmental margins ochraceous; legs less sanguineous and more fuscous; thorax above wholly tawny-brown speckled with fuscous; base of abdomen narrowly sanguineous; other characters as in *E. apicalis*.

Length excl. tegm. 7; exp. tegm. 14 to $15\frac{1}{2}$ millim.

Hab. Nilgiri Hills (*Hampson*). Ceylon (*Brit. Mus.*), Hambantota (*Green*).

It is quite possible that this is only a varietal form of *E. apicalis*, Walk., but at present there is no more reason for that conclusion than there is for its specific distinctness, which at least seems more probable.

1750. **Eurybrachys? rubricincta,** *Walk. Ins. Saund., Hom.* p. 46 (1858); *Atkins.* (Eurybrachys?) *J. A. S. Beng.* lv, p. 16 (1886).

The type of this species is not now to be found in the British Museum, or it may have been sunk as a synonym of some other species by Walker himself without published comment. I therefore, under the circumstances, give his original description:—

"Testaceous. Vertex transverse, short, slightly arched, with a brown dot on each side; front flat, smooth, transverse, dilated and angular on each side; face small. Thorax slightly marked with brown. Prothorax slightly convex in front, with a slight middle keel. Mesothorax with three slight keels. Metathorax bright crimson. Legs bright-red; anterior legs much dilated. Fore wings pale luteous, whitish at the tips, with three spotted green bands; some black marks on the veins, three black dots near the interior angle, and two black submarginal points. Hind wings snow-white with two black spots in front, the second almost apical. *Male.* Abdomen with foliaceous apical appendages. *Female.* Abdomen towards the tip with a mass of snow-white filaments." (*Walker.*)

"Length of the body $3\frac{1}{2}$ lines; of the wings 3 lines."

Hab. "North Hindostan."

Genus ANCYRA.

Ancyra, *White, A. M. N. H.* xv, p. 34 (1845); *Atkins. J. A. S. Beng.* liv, p. 156 (1885).

Type, *A. appendiculata*, White.

Distribution. Oriental Region.

Eyes with a tuberculous spine beneath; head (including eyes) a little broader than the pronotum; anterior margin of front with a well-developed ridge; face oblique, much broader than long, with transverse rugose lines; clypeus narrow; pronotum slightly broader than mesonotum, with three discal longitudinal ridges; tegmina narrow in male, much broader in female, distinctly notched on posterior margin at claval apex, narrowed at apical area in male, and in this sex provided with a long apical process, apical area not narrowed but broadly apically rounded in female and provided with a somewhat short dentate apical process; venation longitudinal, with very indistinct transverse veinlets; wings in both sexes about as broad as tegmina, elongate, a little broadened medially and provided in the female with a short robust apical process; anterior femora compressed, moderately dilated; anterior tibiæ strongly dilated, posterior tibiæ with four spines.

1751. **Ancyra appendiculata**, *White, A. M. N. H.* xv, p. 34 (1845); *Westw. Cab. Orient. Ent.* p. 74, t. xxxvi, f. 5 (1848); *Dist. J. A. S. Beng.* xlviii (2), p. 38 (1879).

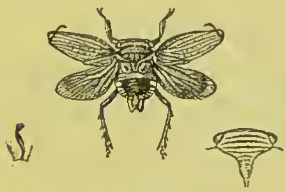

Fig. 95.
Ancyra appendiculata, ♂.

♂. Head, pro- and mesonota, and sternum brownish-ochraceous; anterior margin of front, margins of pronotum, and posterior angle of mesonotum narrowly fuscous; face with margins and transverse rugose lines fuscous; legs piceous, more or less speckled with pale brownish; metanotum and basal half of abdomen sanguineous, apical half ochraceous with its dorsal disk black; tegmina shining brownish-ochraceous, the apical appendages black; wings black, their apical margins palely fuscous.

♀. Resembling ♂, but with the tegmina much broader and apically broadly rounded; above dull purplish-red, with the apical area united to a preceding oblique transverse fascia, and a number of small spots on basal half, greyish; beneath more uniformly and brightly purple-red, with the apical margin ochraceous; wings generally as in male, but with a tooth-like apical appendage; abdomen much covered with white waxy efflorescence.

Length excl. tegm., ♂ 6, ♀ 9; exp. tegm., ♂ 20, ♀ 23 to 26 millim.

Hab. Burma: Moulmein (*fide Wright*); Tenasserim, Myitta (*Doherty*).

1752. **Ancyra histrionica,** *Stål, Stett. ent. Zeit.* xxiv, p. 245 (1863); *Atkins. J. A. S. Beng.* liv, p. 157 (1885).

♀. Fusco-ferruginous; face yellow-ferruginous, adorned with five subelevated narrow black bands; tegmina obscurely ferrugineous, basal part and oblique band behind the middle flavescent, apical callus black, apical appendage fuscescent-ochraceous; abdomen flavescent (when alive sanguineous?), apex covered with a mouldy pubescence; feet blackish. Closely allied to *A. appendiculata*; tegmina, especially behind the middle, broader; apical appendage shorter, fuscescent-ochraceous not black-fuscous, apical callus smaller; wings broader and their apical process shorter.

Length excl. tegm., ♀, 11; exp. tegm. 26 millim.

Hab. Burma; Pegu (*fide Atkinson*).—Cambodia.

I have not seen this species.

Genus MESSENA.

Messena, *Stål, Rio Jan. Hem.* ii, p. 67 (1858); *id. Stett. ent. Zeit.* xxiv, p. 246 (1863); *Atkins. J. A. S. Beng.* lv, p. 12 (1886).

Type, *M. pulverosa*, Hope.

Distribution. Oriental and Malayan Regions.

Wings somewhat narrow, either not so broad or scarcely broader than the tegmina; head very broad, distinctly angularly prominent before the eyes, genæ broad, front distinctly broader than the pronotum, vertex subequal in length to pronotum, eyes beneath distinctly spinose; tegmina with the clavus very broad at apex; posterior tibiæ with six spines.

A. *Wings white, with submarginal black spots.*

1753. **Messena pulverosa,** *Hope* (Eurybrachis), *Tr. Linn. Soc.* xix, p. 134, t. xii, f. 7, *a, b* (1845); *Stål* (Messena), *Rio Jan. Hem.* ii, p. 67 (1862); *id. Stett. ent. Zeit.* xxiv, p. 246 (1863); *Atkins. J. A. S. Beng.* lv, p. 17 (1886).

Messena burmanica, *Atkins. J. A. S. Beng.* lvii, p. 340 (1888).

Head and thorax above ochraceous speckled with brown, and with two small fuscous discal spots on pronotum; abdomen dull sanguineous, apex with a long white coarse pilose appendage (easily mutilated and frequently absent in cabinet specimens); face bright reddish-ochraceous, its margins and the clypeus ochraceous; sternum and legs virescent, anterior legs spotted with black, the tarsi and nearly the whole of the posterior tibiæ black; disk of abdomen beneath with alternate black and ochraceous transverse fasciæ; tegmina with about basal

Fig. 96.—*Messena pulverosa.*

half (not reaching costal margin) virescent, with the venation darker, remaining area pale greyish with the venation fuscous, about three small black spots on virescent area, and two and some very much smaller black spots on apical area; wings cretaceous, with three subapical white spots; rostrum short, piceous, about reaching the intermediate coxæ.

Length excl. tegm. 14½ to 15; exp. tegm. 50 to 55 millim.

Hab. Sylhet (*Brit. Mus.*). Malabar (*Coll. Dist.*). Burma; Palôn (*Bingham*).

The type of *M. burmanica*, Atkins., is now contained in the collection of the British Museum; it is a faded specimen of *M. pulverosa* in which the basal green coloration of the tegmina has become tawny-brown.

1754. **Messena nebulosa**, *Stål, Stett. ent. Zeit.* xxiv, p. 246 (1863); *Atkins. J. A. S. Beng.* lv, p. 18 (1886).

Head, thorax, sternum, and legs ochraceous; anterior legs spotted with black, posterior tibiæ (excluding base) piceous, tarsi more or less piceous; abdomen sanguineous, beneath with alternate discal black and ochraceous transverse fasciæ; head and thorax above finely mottled with fuscous-brown; abdominal anal appendage ochraceous; tegmina very pale tawny-greyish, with irregular scattered piceous mottlings on basal half not reaching costal area, and three subapical marginal spots and smaller apical spots or dots piceous; wings cretaceous, with three subapical black spots; rostrum mutilated in specimen described.

Closely allied to the preceding species (*M. pulverosa*). Stål describes the tegmina and wings as narrower, the former not amplified towards the apex, but these differences do not exist in my specimens. The differences are principally those of colour, but the two species seem undoubtedly distinct.

Length excl. tegm. 15; exp. tegm. 47 to 50 millim.

Hab. Malabar (*Coll. Dist.*).—Malay Peninsula. Cambodia.

1755. **Messena punctifera**, *Walk.* (Eurybrachys) *List Hom.* ii, p. 383 (1851); *Dist. J. A. S. Beng.* xlviii (2), p. 38 (1879); *Atkins. op. cit.* lv, p. 16 (1886).

Body above pale fawn-colour, head and thorax above finely mottled with tawny-brown; body beneath and legs paler and more ochraceous, anterior tibiæ and apical areas of anterior femora somewhat thickly speckled with piceous, intermediate tibiæ outwardly mottled with piceous, tarsi with fuscous annulations; abdomen beneath with transverse abdominal segmental piceous fasciæ; tegmina very pale fawn-colour, the venation darker and in parts testaceous, the costal and apical areas irregularly a little paler, the last ornamented with very small piceous spots continued a little along the extreme posterior margin, where the largest spot is situate; wings creamy-white

with pale fuscous suffusion, a transverse black spot near or at apex and a smaller one a little before it on posterior margin; rostrum reaching intermediate coxæ, a little fuscous at base; face very slightly granulose, with a few transverse narrow linear brown spots.

Length excl. tegm. 10½; exp. tegm. 37½ millim.

Hab. Madras (*Brit. Mus.*). Tenasserim.

1756. **Messena radiata**, *Dist. Tr. E. S.* 1892, p. 280, t. xiii, f. 1.

Head and thorax above ochraceous, with irregular darker markings; face ochraceous, its anterior margin speckled with fuscous; abdomen above sanguineous, its lateral margins and anal appendages orange-yellow; sternum and legs pale ochraceous, anterior femora and tibiæ finely spotted with black; posterior tibiæ (excluding base), rostrum (excluding apex), and posterior coxal spots black; abdomen beneath orange-yellow, the segmental margins and apex more or less fuscous; tegmina with almost basal half ochraceous shaded with purplish towards its margins and with a few small scattered discal purplish spots, remaining area pale greyish-brown, with a central subapical spot, a spot near apex of inner margin, and some very small scattered spots on apical margin black; wings pale greyish, with three subapical marginal black spots.

Length excl. tegm. 12; exp. tegm. 36 millim.

Hab. Nilgiri Hills (*Hampson*).

B. *Wings white, with the basal area sanguineous and with submarginal black spots.*

1757. **Messena crudelis**, *Westw.* (Eurybrachys) *A. M. N. H.* (2) vii, p. 208 (1851); *Kirk. J. Bomb. Nat. Hist. Soc.* xiv, p. 51 (1902): *Melich. Hom. Faun. Ceylon*, p. 69 (1903).
Eurybrachys westwoodi, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 146, t. vi, f. 1 (1891); *Kirk.* (Messena) *Entomologist*, xxxiii, p. 294 (1900); *Melich.* (Eurybrachys-Messena) *Hom. Faun. Ceylon*, p. 69 (1903).

Head and thorax above brownish ochraceous with darker mottlings, and with two or three small discal piceous spots on pronotum; abdomen above sanguineous with cretaceous pilose spots and with a mass of cretaceous waxy efflorescence at apex; body beneath brownish ochraceous; rostrum, coxal spots, bases of femora, posterior tibiæ and tarsi, lateral spots and transverse discal fasciæ to abdomen beneath black; tegmina either greyish-white with the veins fuscous and about basal half bluish-green, or pale fuscous-brown with the basal half darker, but in this case bluish-green beneath, about three discal piceous spots on basal area, and smaller spots or dots on apical area, frequently a prominent black spot near apex of inner margin; wings

cretaceous white, with about basal third bright sanguineous, and with three black submarginal apical spots.

Length excl. tegm. 11 to 13; exp. tegm. 44 to 55 millim.

Hab. Ceylon; Kandy, Dambool (*Green*).

Westwood described the species from a faded specimen, in which the green coloration of the tegmina had become obsolete; Kirby's description applies to fresh specimens.

C. *Wings greyish, with the upper basal area black and with submarginal black spots.*

1758. **Messena sinuata**, *Atkins. J. A. S. Beng.* lvii, p. 339 (1888).

Head and thorax above pale tawny-brown, irregularly spotted with piceous; abdomen above and the mesosternum sanguineous, abdominal apex covered with cretaceous waxy efflorescence; face, prosternum, legs, and abdomen beneath pale tawny-brown; face and anterior and intermediate legs spotted and mottled with piceous; anterior tibiæ and posterior legs piceous; abdomen beneath with lateral spots and transverse discal fasciæ black; tegmina with about basal two-thirds, obliquely narrowing to costal margin at about one-third from base, purplish-red, somewhat transversely marked by maculate black fasciæ, the costal margin with small black spots, remaining area pale dull ochraceous with clusters of black mottled markings on apical area and above the termination of the basal purplish area; wings greyish-ochraceous, a large black longitudinal fascia on the anterior area widened outwardly and truncately terminating at about two-thirds from base, apical area with three submarginal black spots, the two uppermost sometimes confluent.

Length excl. tegm. 15; exp. tegm. 36 millim.*

Hab. Trivandrum (*Ferguson*). Nilgiri Hills (*Hampson*).

Genus **NICIDUS**.

Nicidus, *Stål, Öfv. Vet.-Ak. Förh.* 1858, p. 451; *Melich. Hom. Faun. Ceylon*, p. 69 (1903).
Kandiana, *Dist. Tr. E. S.* 1892, p. 280.

Type, *N. fusco-nebulosus*, Stål.

Distribution. Ceylon.

Body oblong; head broad, broader than pronotum, anteriorly and obsoletely angularly rounded, vertex about half as long as broad, face much flattened and approaching plane of sternum, strongly angularly produced in front of eyes; clypeus moderately convex; antennæ short, not passing beyond eyes, which are strongly

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* Atkinson gives 46 millim. as the expanse of tegmina, but this is probably a misprint.

spined; pronotum transverse, a little shorter than mesonotum; tegmina very long, about half as long again as body, the apex a little narrowed, venation reticulate, more obsoletely so at base; wings about as broad as, but one-third shorter than, tegmina; anterior tibiæ moderately compressed and dilated, posterior tibiæ with six spines.

1759. **Nicidus fusco-nebulosus**, *Stål, Öfv. Vet.-Ak. Förh.* 1858, p. 451; *Melich. Hom. Faun. Ceylon*, p. 70, t. iii, f. 14 (1903).
Kandiana lewisi, *Dist. Tr. E. S.* 1892, p. 280, t. xiii, f. 2.

Body above and abdomen beneath warm ochraceous; face, sternum, and legs more stramineous; apices of anterior femora, and the anterior tibiæ and tarsi, thickly mottled with fuscous, intermediate tibiæ and tarsi less thickly mottled with fuscous; body above with darker mottlings or shadings; tegmina subhyaline, venation brownish-ochraceous, with irregular mottlings and spots of the same colour, basal area more fuscously maculate, and just before apex the spots become almost fasciate; wings pale obscure ochraceous-brown, the apex greyish preceded by a transverse fuscous spot.

Fig. 97.
Nicidus fusco-nebulosus.

Length excl. tegm. 9; exp. tegm. 32 to 35 millim.

Hab. Ceylon (*Lewis*); Kandy (*Green*).

This species appears to be confined to the island of Ceylon.

Genus THESSITUS.

Thessitus, *Walk. Journ. Ent.* i, p. 307 (1862); *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 753; *Atkins. J. A. S. Beng.* lv, p. 12 (1886).
Thessita, *Stål, Stett. ent. Zeit.* xxiv, pp. 246–7 (1863).

Type, *T. mortuifolia*, Walk., from the Malayan Region.

Distribution. Oriental and Malayan Regions.

Wings ample, broader than the tegmina; head with the lateral angles of the front much produced, vertex distinctly sinuate at base; antennæ short, cylindrical; clavus broad at apex, the two longitudinal veins separated throughout their whole length; median longitudinal area of wings dilated and with the outer area of wings furnished with transverse veins; posterior tibiæ with six spines; anterior and intermediate femora and tarsi somewhat strongly dilated; rostrum reaching the posterior coxæ; anterior and anterior-lateral margins of face with two ridges, between which the surface is concave; tegmina with about apical half, and the costal area (excluding base) with the venation, reticulate.

A. *Vertex of head not quite twice broader than long.*

a. *Tegmina with the apical margins oblique.*

1760. **Thessitus insignis,** *Westw.* (Eurybrachys) *A. M. N. H.* ix, p. 119 (1842); *Hope* (Eurybrachis), *Tr. Linn. Soc.* xix, p. 134, t. xii, f. 9 (1845): *Stål,* (Thessita) *Stett. ent. Zeit.* xxiv, p. 247 (1863); *Atkins.* (Thessitus) *J. A. S. Beng.* lv, p. 19 (1886).
Var. multicolor, *Walk.* (Eurybrachys) *J. Linn. Soc., Zool.* i, p. 88 (1856).

Body and legs brownish-ochraceous; tarsi and rostrum fuscous; apex of abdomen (in fresh specimens) more or less covered and concealed with white waxy efflorescence; tegmina above pale fawn-coloured, about basal half (not wholly reaching costal margin)

Fig. 98.—*Thessitus insignis.*

darker in hue and ornamented with transverse or oblique black spots, outer half of costal and the whole of apical marginal areas with minute black spots, tegmina beneath with the outer margins of the basal darker coloration broadly cretaceously tomentose; wings cretaceous-white, apical area with a cluster of black spots, of which the inner three are largest and the outer series (of about five) smallest.

Length excl. tegm. $14\frac{1}{2}$ to 18; exp. tegm. 54 to 62 millim.

Hab. Malabar (*Coll. Dist.*).—Found generally throughout the Indo-Malayan Islands.

The variety or race *multicolor*, Walk., has the basal area of the tegmina virescent or bluish-green, and, so far as my experience extends, is confined to the Eastern or Malayan Regions, and not found in British India.

B. *Vertex of head more than twice broader than long.*

b. *Tegmina with the apical margin obtusely rounded, subtruncate.*

1761. **Thessitus nigro-notatus,** *Stål* (Thessita), *Stett. ent. Zeit.* xxiv, p. 247 (1863); *Atkins.* (Thessitus) *J. A. S. Beng.* lv, p. 19 (1886).

Body and legs pale fawn-colour; vertex of head with the anterior margin, two spots on each side before eyes and a central basal spot, pronotum with two anterior angulated spots and five small

rounded posterior marginal spots, mesonotum with four discal spots, of which the two central are largest, face with anterior margin and five transverse linear spots, apical spots to anterior femora, and spots to anterior and intermediate tibiæ, black; posterior tibiæ fuscous; tegmina pale fawn-colour, considerably and irregularly mottled with black, apical margin with distinct and somewhat large black spots, and with a distinct subcostal sanguineous line from base to near middle; wings greyish-white, slightly palely infuscated, with a cluster of black spots on apical area, of which the innermost are largest.

Length excl. tegm. 11; exp. tegm. 32 to 37 millim.

Hab. Tenasserim (*fide Atkinson*).—Malay Peninsula.

Genus LOXOCEPHALA.

Loxocephala, *Schaum, in Ersch & Gruber, Allg. Encycl. Wiss. u. Künste,* art. Fulgorellæ, sec. 53, p. 71 (1850); *Atkins. J. A. S. Beng.* lv, p. 12 (1886).

Type, *L. æruginosa*, Hope.

Distribution. Brit. India.

Wings ample, broader than the tegmina; vertex of head very slightly sinuate at base or truncated, lateral angles of front less produced than in *Thessitus*; clavus narrowly open at apex, the two longitudinal veins nearly united at middle; wings without a dilated area; head scarcely broader than pronotum; second joint of antennæ very briefly subcylindrical; posterior tibiæ with five spines; face with the two anterior ridges fused at centre, obsoletely continued along lateral margins; tegmina with the transverse venation continued to basal area; anterior legs more dilated than the intermediate legs; rostrum short, nearly reaching the intermediate coxæ.

1762. **Loxocephala æruginosa**, *Hope* (Lystra), *Tr. Linn. Soc.* xviii, p. 443, t. xxxi, f. 1 (1841); *Schaum, in Ersch & Gruber* (Loxocephala), *Allg. Encycl. Wiss. u. Künste,* sec. 53, p. 71 (1850); *Atkins. J. A. S. Beng.* lv, p. 20 (1886).

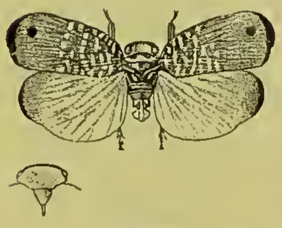

Fig. 99.
Loxocephala æruginosa.

Head and pronotum green, mesonotum ochraceous; body testaceous; clypeus, rostrum, and legs sanguineous; small marginal black spots on each side of sternum; tegmina very pale tawny-brown, basal half ornamented with transverse virescent spots, apical margin and a large subapical spot black; wings greyish-white, apical area pale tawny-brown outwardly, margined with black.

In many specimens the black apical margins to both tegmina and wings are absent or obsolete.

Length excl. tegm. $8\frac{1}{2}$ to 11; exp. tegm. $27\frac{1}{2}$ to 40 millim.*

Hab. Sylhet, Sikhim (*Ind. Mus.*). North-west Province; Garwhal (*Coll. Dist.*). Assam; Khási Hills (*Chennell*). Nága Hills (*Doherty*).

1763. **Loxocephala decora**, *Walk.* (Eurybrachys) *List Hom.* ii, p. 382 (1851); *Atkins.* (Loxocephala) *J. A. S. Beng.* lv, p. 20 (1886).

Body above ochraceous, or probably in fresh specimens virescent; a central line to clypeus and the legs sanguineous; anterior margins of vertex, pronotum, and mesonotum, and the dilatations of anterior tibiæ black; tegmina pale tawny-brown; a transverse fascia at base, the apical margin, and a discal transverse streak before it black; wings cretaceous-white, apical marginal area very pale tawny-brown, its outer margin and a spot near apex of costal margin black.

Length excl. tegm. $10\frac{1}{2}$; exp. tegm. 29 to 32 millim.

Hab. Sikhim (*Ind. Mus.*). Darjiling (*Coll. Dist.*). Assam (*Brit. Mus.*).

1764. **Loxocephala castanea**, *Dist. Tr. E. S.* 1892, p. 281.

Body and legs ochraceous; anterior margin of front, central portion of anterior margin of pronotum, transverse fasciæ to abdomen above, dilatations to the anterior tibiæ, apices of tarsi, and base of apical segment of the abdomen beneath black; tegmina bright castaneous, minutely spotted with grey, the apical area bright ochraceous, containing a central black macular fascia and with the apical margin also black.

Length excl. tegm. 10; exp. tegm. 28 to 30 millim.

Hab. Assam; Margherita and Nága Hills (*Doherty*).

Allied to *L. decora*, Walk., from which it may be separated by the different colour of the tegmina, absence of the black basal fascia to same, and also by the absence of the black subapical spot to wings and black fascia to mesonotum.

Genus **NESIS**.

Nesis, *Stål, Rio Jan. Hem.* ii, p. 67 (1862); *Atkins. J. A. S. Beng.* lv, p. 12 (1886).

Type, *N. tricolor*, Walk.

Distribution. Brit. India.

Head narrower than the thorax, vertex subsinuate at the base; second joint of the antennæ subglobose; lateral angles of the front moderately produced; tegmina elongate, somewhat narrow, the clavus narrowly open at apex, the longitudinal veins nearly united in the middle; wings ample, broader than the tegmina, without a

* Atkinson (*supra*) gives the dimensions of this species as "Long, $27\frac{1}{2}$ broad, $8\frac{1}{2}$ millim."; but this is clearly a transposition.

dilated area; posterior tibiæ normally with four spines; anterior femora and tibiæ distinctly dilated; clypeus convex.

This genus, according to present knowledge, is confined to British India, and comprises only two species.

1765. **Nesis tricolor**, *Walk.* (Eurybrachys) *List Hom.* ii, p. 384 (1851); *Stål* (Nesis), *Rio Jan. Hem.* ii, p. 67 (1862); *id. Stett. ent. Zeit.* xxiv, p. 248 (1863); *Atkins. J. A. S. Beng.* lv, p. 21 (1886).

Aphana sanguinipes, *Stål, Öfv. Vet.-Ak. Förh.* 1854, p. 245; *Atkins.* (Nesis) *J. A. S. Beng.* lv, p. 21 (1886).

Head above fuscous-brown; thorax above piceous, densely palely ochraceously pilose; abdomen, sternum, and legs sanguineous; face brownish-ochraceous; clypeus testaceous; abdominal apex furnished with long white waxy efflorescence; tegmina black, with scattered pale ochraceous pilosity, taking the form of short fasciæ or spots, apical area fuscous-brown with scattered black spots; tegmina beneath more uniformly black; wings cretaceous-white; vertex of head distinctly nodulose on each side near eyes.

Fig. 100.—*Nesis tricolor.*

Length excl. tegm. 9; exp. tegm. 27 to 28 millim.

Hab. "Himalayas" (*Coll. Dist.*). Karo (*Coll. Dist.*). Mussorree (*Mackinnon*).

1766. **Nesis versicolor**, sp. n.

Head, pronotum, mesonotum, face, and legs tawny-brown; abdomen above and beneath pale testaceous, the anal appendage ochraceous; sternum ochraceous; rostrum (more or less), outer dilatations of anterior tibiæ, tarsi, and two oblique spots at base of anal appendage beneath piceous; tegmina fuscous-brown, with numerous large and irregular dull grey spots on basal two-thirds, a subapical transverse fascia and large irregular spots on basal two-thirds sanguineous; apical area with two transverse series of small black spots, the innermost much more discontinuous; wings creamy white.

Length excl. tegm. $8\frac{1}{2}$; exp. tegm. 27 millim.

Hab. Panjab; Dalhousie (*Harford, Brit. Mus.*).

Allied to *N. tricolor*, Walk., from which it may be separated by the different colour of the tegmina, which are also a little more concavely indented on costal margins before apices, and by the more dilated anterior legs.

Genus FRUTIS.

Frutis, *Stål, Öfv. Vet.-Ak. Förh.* 1862, p. 488; *Atkins. J. A. S. Beng.* lv, p. 13 (1886).

Type, *F. pulchra*, Gray.

Distribution. Oriental and Malayan Regions, and recorded from China.

Eyes unarmed beneath; clavus somewhat acutely closed at apex; posterior tibiæ usually with six spines; mesonotum half as long again as the pronotum; antennæ short, second joint globose; head (including eyes) distinctly narrower than the pronotum, the lateral margins of which are subangularly ampliate: anterior tibiæ moderately dilated; abdomen very broad and robust; tegmina a little longer than body, narrower than wings, venation considerably reticulate, transverse veinlets often faintly visible, but extending to near base.

1767. **Frutis pulchra**, *Gray* (Lystra), *Griff. An. Kingd., Ins.* ii, p. 260 t. xc, f. 5 (1832); *Stål* (Frutis), *Öfv. Vet.-Ak. Förh.* 1862, pp. 488 & 500; *Atkins. J. A. S. Beng.* lv, p. 22 (1886).
Aphæna veris-amor, *Walk. J. Linn. Soc., Zool.* i, p. 143 (1857).

Head, thorax above, sternum, and legs olivaceous-brown; tibiæ and tarsi infuscate; abdomen above and beneath sanguineous, with lateral segmental spiracular small tufts of greyish pile;

Fig. 101.—*Frutis pulchra.*

anal appendage pale ochraceous, usually broadly covered with white waxy efflorescence; tegmina shining dark virescent, macularly a little paler at extreme base, the costal area mottled with cretaceous secretion; an outwardly curved ochraceous transverse fascia at about one-third from apex, beyond which the colour is paler, and before which there is a subobsolete paler oblique fascia; in some specimens the costal and apical areas and basal maculation are dull ochraceous; tegmina beneath, with the margin of the curved ochraceous fascia, and some scattered spots cretaceously tomentose: wings cretaceously opaque, the margins a little paler and sometimes slightly ochraceous.

Length excl. tegm. 19 to 23; exp. tegm. 48 to 55 millim.

Hab. "India" (*fide Gray & Atkinson*).—Malay Peninsula; Perak (*Coll. Dist.*). Borneo.

1768. **Purusha reversa,** *Hope* (Eurybrachis), *Tr. Linn. Soc.* xix, p. 134, t. xii, f. 8 (1845); *Atkins.* (?) *J. A. S. Beng.* lv, p. 22 (1886).

"Fuscous-yellow, head and thorax concolorous; abdomen whitish in the middle, adorned posteriorly with a yellow cottony substance, apex shining white; tegmina fuscous-yellow, tinted subsanguineous at the base; a round white spot at anterior margin, a secon smaller almost on the middle of the disc, and other very minute

Fig. 102.—*Purusha reversa.*

spots sprinkled about; basal half of wings whitish, apex irregularly irrorated fuscous; four anterior feet (legs) yellow-fuscous; tibiæ more obscure; last femora pale testaceous; tibiæ blackish." (*Hope.*)

Length excl. tegm. 14½; exp. tegm. 34 millim.

Hab. Sylhet (*fide Hope*).

This is a very scarce species. I have not seen it, and know of no one who has, nor am I aware of the location of the type. By the peculiar wings it evidently constitutes an undescribed genus, which I propose may be known as *Purusha*, but which I cannot structurally diagnose from the above specific description, and for the same reason it could not be located in the synopsis of genera.

Subfamily III. DICTYOPHARINÆ.

Dyctiophoroides, part., *Spin. Ann. Soc. Ent. Fr.* 1839, p. 283.
Pseudophanides, part., *Amy. & Serv. Hém.* p. 502 (1843).
Dictyopharida, *Stål, Hem. Afr.* iv, p. 129 (1866).
Dictyopharina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 744; *Atkins. J. A. S. Beng.* lv, p. 22 (1886).
Dictyopharidæ, *Melich. Hom. Faun. Ceylon*, p. 17 (1903).

Stål, who is generally followed in the enumeration of these subfamilies, thus diagnoses the Dictyopharinæ:—Posterior tibiæ without a mobile apical spur; sides of face not angulated; legs often simple; anal area of wings never reticulate; clavus very rarely granulate, acuminate at apex, sometimes but rarely somewhat obtusely, distinctly closed; the two veins remote or very remote from the apex, sometimes, however, united in one behind the middle; costa seldom dilated; tegmina sometimes abbreviated, or connate with clavus and corium; front without an apical ocellus.

Synopsis of Genera.

In this synopsis I have not included the very distinctive characters to be found in the structure of the face, because these can be more readily understood and compared by the figures supplied. The synoptical characters given below are therefore supplementary to the important facial characteristics.

A. Posterior tibiæ with from three to seven spines; pro- and mesonota not sulcate.
- a. Clavus of tegmina with a transverse vein.
  - *a*. Head with either a short or moderately long curved cephalic process; posterior tibiæ with six or seven spines .... DICHOPTERA, p. 237.
  - *a'*. Head with a very long porrect cephalic process; posterior tibiæ with three or four spines .... PIBROCHA, p. 240.
- b. Clavus of tegmina without a transverse vein.
  - *b*. Tegmina wholly reticulately veined...... ALUNTIA, p. 241.
  - *b'*. Tegmina only transversely veined on apical area.
    - *c'*. Anterior femora without a spine.
      - *d'*. Head with a well-developed porrect or curved cephalic process.
        - *e'*. Head not sulcate between eyes .. DICTYOPHARA, [p. 241.
        - *e*^{2}. Head broadly and deeply sulcate between two strong convex ridges situate at inner margins of eyes.. PUTALA, p. 246.
    - *c*^{2}. Anterior femora with a distinct blunt spine near apex.
      - *d*^{2}. Head with a long, slender, cephalic process .... MIASA, p. 247.
      - *d*^{3}. Head not produced in a cephalic process .... UDUGAMA, p. 249.
    - *c*^{3}. Anterior femora with a minute acute spine near apex.
      - *d*^{4}. Head with a short anterior recurved process; lateral ridges to mesonotum not forked...................... CENTROMERIA, [p. 250.
      - *d*^{5}. Head without anterior recurved process; lateral ridges to mesonotum forked .... DICTYOPHARINA, [p. 252.

B. Posterior tibiæ with a single spine; pro- and mesonota profoundly longitudinally sulcate.. SYMPLANA, p. 254.

Genus DICHOPTERA.

Dichoptera, *Spin. Ann. Soc. Ent. Fr.* 1839, p. 286; *Stål, Hem. Afr.* iv, p. 149 (1866); *Atkins. J. A. S. Beng.* lv, p. 23 (1886).

Type, *D. hyalinata*, Fabr.

Distribution. Oriental, Malayan, and Australian Regions.

Head (including eyes) only about half the width of the pronotum, more or less elongate, sometimes with a distinct cephalic process, vertex subquadrate, its lateral margins sinuate, its anterior margin

sometimes lobate, eyes oblique; pronotum narrower than mesonotum, subangularly produced anteriorly, centrally longitudinally ridged, the lateral edges acute, slightly recurved, the posterior angles obtusely angularly produced; mesonotum with three discal longitudinal ridges; abdomen about as long as space between apices of vertex and mesonotal posterior angle; posterior tibiæ with six or seven spines; face long, ovate, narrowed towards clypeus and with a central longitudinal ridge, genæ posteriorly very broad; rostrum long, considerably passing posterior coxæ; tegmina and wings considerably longer than abdomen, the first about one-third longer than the second; tegmina with numerous transverse veins on about apical third, clavus with a single transverse vein between the interior vein and the claval suture; some transverse veins on apical area, the anal area never reticulate.

A. *Vertex of head longer than broad.*

a. *Vertex of head centrally lobately produced, its anterior angles sublobately rounded.*

b. *Front of head a little and obliquely upwardly produced, its apex obtusely angulate.*

1769. **Dichoptera hyalinata**, *Fabr.* (Fulgora) *Spec. Ins.* ii, p. 315 (1781); *Oliv. Enc. Méth.* vi, p. 572 (1791); *Don. Ins. Ind.* t. vii, f. 3 (1800); *Germ.* (Flata) *Mag. Ent.* iii, p. 190 (1818); *Burm.* (Pseudophana) *Handb. Ent.* ii (1) p. 160 (1834); *Spin.* (Dichoptera) *Ann. Soc. Ent. Fr.* 1839, p. 289, t. xiii, f. 3; *Atkins. J. A. S. Beng.* lv, p. 23 (1886).

Body and legs pale brownish-ochraceous, head and thorax above and beneath with numerons black punctures, especially prominent on disk of mesonotum and under surface of head; edges and ridges to head and lateral edges to pronotum black; anterior longitudinal lines to vertex of head, basal elongate spots to mesonotum, central and apical annulations to tibiæ (obscure on posterior tibiæ), rostrum at apex and with apex of penultimate joint piceous; tegmina hyaline, venation fuscons irrorated with ochraceous, and with a piceous transverse fascia at apices of ulnar veins; wings hyaline, with an apical piceous spot. In some specimens the abdomen is marked with a double discal segmental series of black spots, as in fig. 103; in other specimens these are absent.

Fig. 103.—*Dichoptera hyalinata.*

Length excl. tegm. 19 to 20; exp. tegm. 50 millim.

Hab. Bengal. Bombay (*Leith*). Bangalore and Calcutta (*Ind. Mus.*). Ceylon; Tangalla (*Green*). Andaman Islds. (*Coll. Dist.*).

a'. *Vertex of head centrally lobately produced, its anterior angles subquadrangulate.*

b'. *Front of head strongly almost perpendicularly produced, its apex obtusely angulate.*

1770. **Dichoptera hampsoni**, *Dist. Tr. E. S.* 1892, p. 278.
Dichoptera hyalinata, *var.* hampsoni, *Melich. Hom. Faun. Ceylon*, p. 19, t. i, f. 1 (1903).

Body and legs dull ochraceous; edges and ridges of head aud pronotum and longitudinal lines to vertex of head black; pronotum sometimes with strong discal black suffusions, in other specimens these are abseut; mesonotum with the discal area strongly blackly punctate posteriorly, with two large pale spots with black centres, some large black spots on its lateral areas and small ones ou its anterior margin; abdomen above with a double series of large segmental black spots; head beneath with ridges and edges aud a central line to face and clypeus black; auterior and intermediate tibiæ with three black annulations; tegmina hyaline, the venation fuscous irrorated with ochraceous, trausverse fascia at end of ulnar areas less defined than in *D. hyalinata*, but with numerous fuscous mottlings on apical third, and with a basal and two discal spots on basal two-thirds, and distinct fuscous spots on costal area; wings hyaline, their apical margins fuscous.

Length excl. tegm. 20; exp. tegm. 53 millim.

Hab. Nilgiri Hills, Southern Slopes (*Hampson*). Ceylon; Kandy (*Green*).

B. *Vertex of head as broad as long.*

a'. *Vertex of head centrally subquadrangularly produced, its anterior angles obtusely angulate, its lateral margins very strongly sinuate.*

b'. *Front of head moderately upwardly produeed, its apex obliquely truncate.*

1771. **Dichoptera nubila**, *Dist. Tr. E. S.* 1892, p. 277.

Body and legs bright brownish-ochraceous; head with the edges, ridges, a waved longitudinal spot in front of eyes, truncate apex of cephalic process, two central convex longitudinal lines to vertex, and a small spot near each anterior augle to same black; pronotum with the lateral edges, central ridge, and some irregular discal fasciate markings black; mesonotum with the ridges, a large central somewhat hourglass-shaped fascia, and an outwardly quadrangular-shaped fascia on each lateral area black; abdomen above with a double central series of large segmental spots and a broken macular lateral marginal fascia on each side black; body beneath and legs much mottled with black, and tibiæ with two broad black annulations; rostrum at apex and also apex of penultimate joint black; tegmina obscure hyaline, venation fuscous irrorated

with ochraceous, a narrow waved transverse fuscous fascia at apices of ulnar areas, apical third much mottled with fuscous, especially beneath costal margin a little before apex, costal area alternately fuscous and ochraceous, and with two or three pale fuscous spots at about one-third from base; wings obscure hyaline, venation fuscous, the apical margins fuscous.

Length excl. tegm. 17 to 18; exp. tegm. 48 to 49 millim.

Hab. Assam; Margherita (*Doherty*). Burma; Ruby Mines (*Doherty*).—Borneo.

Genus PIBROCHA.

Pibrocha, *Kirk. J. Nat. Hist. Soc. Bomb.* xiv, p. 50 (1902); *Melich. Hom. Faun. Ceylon*, p. 20 (1903).

Type, *P. egregia*, Kirby.

Distribution. Ceylon.

Head long, porrect, about as long as abdomen and mesonotum together, moderately stout and tricarinate above for about one-third its length, then suddenly narrowed and sulcate above to near apex, which is broadened and clavate; face with four longitudinal carinations, two on each side and meeting anteriorly; rostrum passing posterior coxæ; ocelli distinct; pro- and mesonota longitudinally tricarinate, the first shorter than the second; legs slender, tibiæ longer than femora, posterior tibiæ with three or four spines; tegmina extending considerably beyond the abdomen, the apical third with transverse veins; clavus with a single transverse vein between the claval suture and the interior vein, which from that point is bent down and terminates on the posterior vein; wings about one-third shorter than tegmina, apical area with a few transverse veins.

1772. **Pibrocha egregia**, *Kirby* (Dictyophora), *J. Linn. Soc., Zool.* xxiv, p. 135, t. v, f. 4 (1891); *Kirk.* (Pibrocha) *J. Nat. Hist. Soc. Bomb.* xiv, p. 51, t. B, f. 2 (1902); *Melich. Hom. Faun. Ceylon*, p. 21, t. i, f. 4, *a*, *b* (1903).

Dull brownish-ochraceous speckled with black; posterior angle of mesonotum pale green; abdomen with pale ochraceous suffusions; body beneath paler than above; femora annulated with fuscous; tegmina and wings hyaline with a pale fuscous tint, the venation dark fuscous; tegmina with two shining fuscous spots, one stigmatical, the other apical; wings with an apical dark fuscous spot.

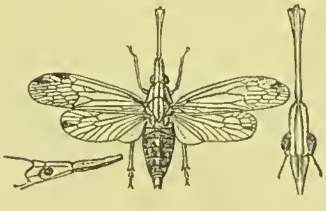

Fig. 104.
Pibrocha egregia.

Length ceph. process, angle from apex to eyes $7\frac{1}{2}$; eyes to apex abdom. 12; exp. tegm. 28 to 30 millim.

Hab. Ceylon; Pundaluoya, Kandy (*Green & Lewis*).

Genus ALUNTIA.

Aluntia, *Stål, Hem. Afr.* iv, pp. 151 & 160 (1866).
Dendrophora, *Melich. Hom. Faun. Ceylon,* p. 21 (1903).

Type, *A. schimperii*, Guér., an Ethiopian species.

Distribution. Ethiopian, Oriental, and Australasian Regions.

Body oblong; head longly produced, slender, more or less longitudinally, broadly sulcate above and beneath, obsoletely medially carinate beneath from behind eyes and through clypeus; pronotum and mesonotum discally finely tricarinate; second joint of antennæ oblong, subcylindrical; rostrum extending to between the intermediate and posterior coxæ; legs slender, posterior tibiæ much longer than femora and with about three short spines on their posterior halves; tegmina moderately long, their apices distinctly ampliated, thickly covered with transverse veins, and for about basal two-thirds thickly interspersed with short veinlets; clavus without a transverse vein, but the claval veins united before middle; wings transversely veined on apical area.

1773. **Aluntia ramosa**, *Melich.* (Dendrophora) *Hom. Faun. Ceylon,* p. 22, t. i, f. 5 (1903).

Body pale virescent in fresh specimens, in old or dried examples pale ochraceous: tegmina very palely virescent, the venation darker; wings a little paler than tegmina; head about as long as, or a little longer than, pro- and mesonota together; pronotum with the lateral edges acute, medially finely tricarinate, the posterior angles obsoletely subacute; mesonotum longer than pronotum and medially tricarinate.

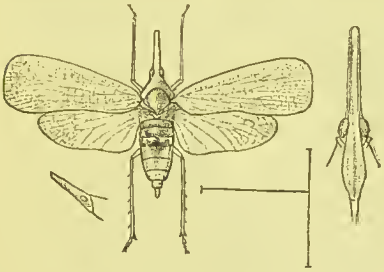

Fig. 105.—*Aluntia ramosa.*

Length ceph. process, angle from apex to eyes 4; eyes to apex abdom. $10\frac{1}{2}$; exp. tegm. 24 to 28 millim.

Hab. Ceylon; Kandy (*Green*).—Malay Peninsula (*Distant & Doherty*).

Genus DICTYOPHARA.

Dictyophara, *Germ. Silb. Rev. Ent.* i. p. 175 (1833); *Stål, Hem. Afr.* iv. p. 154 (1866); *Atkins. J. A. S. Beng.* lv, p. 26 (1886); *Dist. Biol. Centr.-Am., Rhynch. Hom.* i. p. 39 (1887).
Dictiophora, *Spin. Ann. Soc. Ent. Fr.* 1839, p. 290.
Pseudophana, *Burm. Handb. Ent.* ii, 1, p. 159 (1835).
Chanithus, *Amy. Ann. Soc. Ent. Fr.* 1847, p. 160.
Nersia, *Stål, Rio Jan. Hem.* ii, p. 62 (1861).

Type, *D. europæa*, Linn., a Palæarctic species.

Distribution. Apparently almost universal.

Body oblong or oval, somewhat depressed; head variable in size and form, usually porrectly longly produced, the cephalic process straight or recurved, vertex and face frequently carinate; clypeus centrally longitudinally carinate; second joint of antennæ small, subglobose; rostrum long; pronotum frequently broadly emarginate at base, slightly anteriorly sinuate behind the eyes, longitudinally carinate, the carinations varying from one to three; mesonotum frequently tricarinate; tegmina extending beyond the apex of the abdomen, apical area or sometimes nearly apical half with transverse veins, clavus without a transverse vein; wings with a few apical transverse veins; legs moderately long and slender, femora shorter than tibiæ, posterior tibiæ armed with from four to six spines.

A. *Posterior tibiæ with five spines.*

1774. **Dictyophara nigrimacula**, *Walk.* (Dictyophora) *List Hom.* ii, p. 318 (1851); *Atkins.* (Dictyophara?) *J. A. S. Beng.* lv, p. 28 (1886).

Head bright testaceous, the longitudinal ridges green, the lateral areas and apex piceous, beneath with a central green longitudinal carination; pronotum testaceous, the margins and three central carinæ green; mesonotum testaceous, with a transverse piceous spot near each lateral angle of anterior margin, three longitudinal carinæ and a small spot on each lateral margin green; abdomen above ochraceous, much spotted with black, the spots quadrangular, and the most distinct being a double discal series, one on each lateral area, and a narrower marginal series; clypeus, sternum, and legs ochraceous; apical area of clypeus, disk of sternum, and longitudinal lines to legs black; abdomen beneath black, lateral margins (broadly), segmental margins (narrowly), and base of anal segment ochraceous; tegmina vitreous, the venation fuscous, especially that in apical area, stigma fuscous; wings vitreous, the venation fuscous; head shorter than abdomen excluding base, broadly longitudinally sulcate above, beneath, and on lateral areas; rostrum reaching the posterior coxæ; posterior tibiæ with five spines; tegmina and wings transversely veined on about basal thirds.

Length ceph. process, angle from apex to eyes $3\frac{1}{2}$; eyes to apex abdom. 8; exp. tegm. 20 millim.

Hab. "North India" (*Warwick, Brit. Mus.*).

1775. **Dictyophara nilgiriensis**, sp. n.

Pale tawny-brown; eyes fuscous-brown; legs longitudinally striped with piceous; pronotum with the margins and three central longitudinal carinæ flavescent; mesonotum with a transverse piceous spot near each lateral angle of anterior margin, and with three central longitudinal carinæ, a small spot on each lateral margin, and the posterior angle flavescent; apex of

clypeus, linear stripes to rostrum, and apical spots to abdomen beneath piceous; tegmina and wings vitreous, the venation fuscous; tegmina with the stigma fuscous-brown; head robust, about as long as abdomen, the disk, lateral areas, and under surface broadly longitudinally sulcate, the ridges very prominent and six in number, the lateral ridges and those of the under surface being close together, above with a short central carination between eyes, and beneath with a central longitudinal carina which is continued through clypeus; apex of cephalic process or face with a central ridge subacutely rounded above; tegmina and wings with transverse veins on about their apical thirds; posterior tibiæ with five spines.

Length ceph. process, angle from apex to eyes $4\frac{1}{2}$; eyes to apex abdom. 9; exp. tegm. 22 to 24 millim.

Hab. Sikhim (*Brit. Mus.*). Utakamand (*Atkinson Coll., Brit. Mus.*). Nilgiri Hills (*Hampson*). Kangra Valley (*Dudgeon*). Tenasserim; Myitta (*Doherty*).

In some (probably fresh) specimens the colour is more virescent than tawny-brown, the thorax above reddish-ochraceous, with the carina bright olivaceous-green; the abdomen above is also sometimes quadrangularly palely tessellate.

B. *Posterior tibiæ with four spines.*

a. *Tegmina without dark fasciæ.*

1776. **Dictyophara pallida**, *Don.* (Fulgora) *Ins. Ind.* t. viii, f. 2 (1800); *Westw.* (Pseudaphana) *Tr. Linn. Soc.* xviii, p. 150 (1841); *Atkins.* (Dictyophara) *J. A. S. Beng.* lv, p. 27 (1886).
Flata lyrata, *Germ. Thon's Arch.* ii, 2, p. 47 (1830); *Burm.* (Pseudophana) *Handb. Ent.* ii, p. 160 (1835).
Fulgora graminea, *Fabr. Syst. Rhyng.* p. 4 (1803); *Atkins.* (Dictyophara) *J. A. S. Beng.* lv, p. 27 (1886).
Dictyophora despecta, *Walk. List Hom.* ii, p. 314 (1851); *Atkins.* (Dictyophara) *J. A. S. Beng.* lv, p. 27 (1886).
Dictyophora albivitta, *Walk. List Hom.* ii, p. 319 (1851); *Atkins.* (Dictyophara?) *J. A. S. Beng.* lv, p. 29 (1886); *Melich. Hom. Faun. Ceylon*, p. 22 (1903).
Dictyophora leptorhina, *Walk. List Hom.* ii, p. 321 (1851) *Atkins.* (Dictyophara) *J. A. S. Beng.* lv, p. 30 (1886).
Dictyophara percarinata, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 13 (1891); *Melich. Hom. Faun. Ceylon*, p. 24 (1903).
Dictyophara hastata, *Melich. Hom. Faun. Ceylon*, p. 25 (1903).

This is a closely allied species in colour and markings to *D. nilgiriensis*, Dist., but smaller, the cephalic process shorter, and the posterior tibiæ with only four spines. It is subject to the same amount of colour-variation, dependent on the specimens being fresh or otherwise, as described in *D. nilgiriensis*.

Length ceph. process, angle from apex to eyes 3 to $3\frac{1}{2}$; eyes to apex abdom. $7\frac{1}{2}$; exp. tegm. 22 to $22\frac{1}{2}$ millim.

Hab. Sikhim; Mungphu (*Atkinson Coll., Brit. Mus.*). N. Bengal (*Miss Campbell*). Bombay (*Leith*). Nilgiri Hills (*Hampson*). Calcutta (*Ind. Mus.*). Ceylon (*Green*). Burma; Thayetmyo

(*Bingham*). Bhamo (*Fea*). Tenasserim; Myitta (*Doherty*).—S.E. Borneo (*Doherty*).

Has been reported ('Indian Mus. Notes,' v, p. 43, 1900) as destructive to sugar-cane in the North Arcot district, South India. "These insects are seen to perch on the under side of the cane leaf, avoiding sun, and on shaded leaves. They are good springers. The bug is soft-bodied, and is very easily killed by slight handling. These are known to the ryots only since ten years. The cane crop when infested gets stunted and damaged. These appear when cane is six to nine months old. No remedy is known to the ryots. They collectively go by the name of *Cheeda purugu*. In Coimbatore the bug is known as *Thathoo-poochi* and the winged insect as *Thaloocupoochi*."

Melichar, in his description of *D. percarinata*, describes the posterior tibiæ as "mit 5 kleinen Zähnchen," but in Kirby's type of the species, and in all the specimens from Ceylon which I have examined, the spines are only four in number.

I cannot escape from the conclusion that the species described by Fabricius as *graminea* is only a pale virescent form of this species, in which the stigma of the tegmina is only obsoletely infuscate. There is a specimen from Calcutta in the British Museum which exactly corresponds with the description.

1777. **Dictyophara sauropsis**, *Walk.* (Dictyophora) *Journ. Ent.* i, p. 306 (1862); *Atkins.* (Dictyophara) *J. A. S. Beng.* lv, p. 30 (1886).

Allied to *D. pallida*, Don., in colour and markings, but with the cephalic process shorter, sternum and abdomen beneath more or less piceous; femora more or less annulated with piceous near apices; posterior tibiæ with four spines; tegmina with the venation and stigma fuscous.

Length ceph. process, angle from apex to eyes 2; eyes to apex abdom. 7; exp. tegm. 20 millim.

Hab. Bengal; Dacca.—S.E. Borneo (*Brit. Mus.*).

1778. **Dictyophara walkeri**, *Atkins. J. A. S. Beng.* lv, p. 29 (1886).
Dictyophora pallida, *Walk.* (*nec Don.*) *List Hom.* ii, p. 320 (1851).

Body and legs pale ochraceous, apical half of abdomen above virescent; ridges and a central carina to cephalic process beneath, and three central carinæ to pro- and mesonata, green; eyes and apex to cephalic process piceous; tegmina and wings pale creamy hyaline, the venation on apical areas of both, and the stigma of tegmina, very pale fuscous; cephalic process robust, upper and under surface and lateral areas broadly sulcate; rostrum reaching the posterior coxæ; posterior tibiæ with four spines.

Length ceph. process, angle from apex to eyes 2; eyes to apex abdom. $5\frac{1}{2}$; exp. tegm. 15 millim.

Hab. "N. India" (*Brit. Mus.*).

b. *Tegmina with longitudinal fuscous fasciæ.*

1779. **Dictyophara lineata,** *Don.* (Fulgora) *Ins. Ind.* t. viii, f. 1 (1800); *Westw. Tr. Linn. Soc.* xviii, p. 147 (1841); *Atkins.* (Dictyophara) *J. A. S. Beng.* lv, p. 26 (1886).
Fulgora pallida, *Gray, Griff. An. King., Ins.* ii, p. 260, t. xc, f. 2 (1832).
Var. bistriata, *Melich. Hom. Faun. Ceylon,* p. 23 (1903).

Body and legs ochraceous; head with the longitudinal ridges either fuscous or spotted with that colour, its extreme apex piceous, the ridges between the eyes green; thorax above rather reddish-ochraceous; pronotum with the margins and three longitudinal carinæ (the two outermost oblique) green; mesonotum with three longitudinal green carinæ; head beneath with a central green carina extending for more than half its length from base, and its lateral margins to a little beyond eyes of the same colour; a large basal spot to clypeus, lateral areas of meso- and metasterna, and lateral margins to abdomen beneath black; legs and rostrum finely spotted with black; apex of rostrum black and about reaching posterior coxæ; tegmina and wings pale creamy hyaline; tegmina with two longitudinal fuscous fasciæ commencing at a short distance from base, the uppermost submarginal and extending to apex, where it is broadest, the second on inner margin widening towards apex, the apices of both fasciæ usually united; the cephalic process is shorter than the abdomen, broadly sulcate above, beneath, and on lateral areas; posterior tibiæ with four spines.

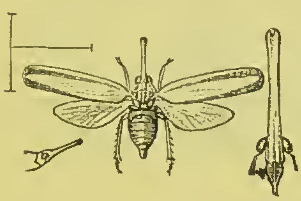
Fig. 106.
Dictyophara lineata.

Length ceph. process, angle from apex to eyes 3; eyes to apex abdom. 6; exp. tegm. 19 millim.

Hab. North Bengal and Mian-Mir (*Brit. Mus.*). Assam; Sibsagar (*Ind. Mus.*). Bombay (*Leith*). Ceylon (*Green*).

The var. *bistriata*, Melich., seems to differ only by the shorter upper fascia to the tegmina. In his description of the posterior tibiæ, Melichar writes "mit 3 Dornen," but there is a fourth basal spine.

Atkinson (J. A. S. Beng. lv, p. 27, 1886) has included the *D. sinica*, Walk., in his enumeration of the Indian species of *Dictyophara*. This he has done on what he acknowledges to be a doubtful locality, "Assam?" All the specimens I have seen are from China, and the species itself may ultimately prove to be but a local race of *D. pallida*, Don.

Genus PUTALA.

Putala, *Melich. Hom. Faun. Ceylon*, p. 26 (1903).

Type, *P. rostrata*, Melich.
Distribution. Oriental and Ethiopian Regions.

Head produced in a distinctly elongate somewhat slender process, longitudinally sulcate above and at lateral areas, broadly and strongly sulcate between eyes, where there are two strongly convex ridges, one at inner margin of each eye, and between them a faint central carination; face long, gradually broadened towards apex, with a central and lateral carination; clypeus with a central ridge, its lateral margins strongly carinate; pronotum anteriorly medially angularly produced, its anterior angles subacute, centrally strongly ridged, its posterior margin moderately concave; mesonotum not carinate or tricarinate; abdomen short; rostrum long, extending to basal area of abdomen; legs moderately long and slender, the femora and tibiæ longitudinally grooved; posterior tibiæ with five spines; tegmina apically rounded, clavus without a transverse vein; stigma broad with five veins, apical third with transverse veins; wings with a few transverse veins at apex.

a. *Mesonotum non-carinate.*

1780. **Putala rostrata**, *Melich. Hom. Faun. Ceylon*, p. 26, t. i, f. 8, *a, b* (1903).

Head lengthened and conically produced before eyes, the projection as long as the pronotum and half of mesonotum together, a brown longitudinal stripe runs from eyes to its apex; face smooth at base and rather impressed at apex, with a central longitudinal ridge; clypeus rather long and narrow, ridged medially and marginally, and like face brownish-yellow, its apex dark brown; eyes brown; antennæ short; ocelli present; pronotum medially ridged, two long longitudinal keels on each side behind eyes, yellowish-white with small brown dots on each side, the vertex brown; mesonotum longer than broad, arched, without keels, brown with three longitudinal stripes on front margin which are abbreviated posteriorly, its posterior angle rusty yellow; tegmina long, narrow, and rounded posteriorly, traversed by brown and slightly bronzed veins, several irregularly divided transverse veins in apical area; stigma large and brown, with three or four transverse veins; abdomen yellowish-brown, the posterior segmental margins pale, two longitudinal central maculate fasciæ, and a smaller and more indistinct lateral maculate fascia on each side; abdomen beneath brown, the segmental margins paler; legs brownish-yellow; femora black, linearly streaked with black or brown; posterior tibiæ with five spines.

♀. Length 11; exp. tegm. 17 millim.

Hab. Ceylon (*fide Melichar*).

I have not seen this species, which is, however, figured by Melichar, and I have transcribed what appears to be the salient points of his description.

b. *Mesonotum tricarinate.*

1781. **Putala maculata**, sp. n.

Head and thorax above brownish-ochraceous, apex and a lateral line on each side of cephalic process piceous; all the ridges to head, pro- and mesonota, and the posterior angle of the last a little paler; abdomen above dark castaneous-brown, the posterior segmental margins and lateral linear spots ochraceous; disk of sternum and the abdomen beneath piceous; face, base of clypeus, sternal lateral areas, coxæ, trochanters, legs, and posterior

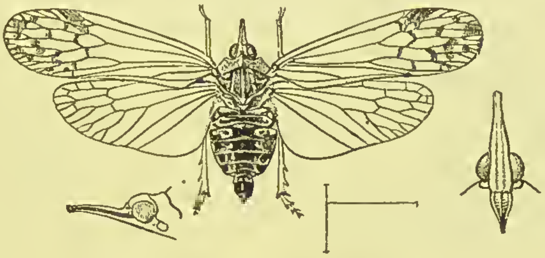

Fig. 107.—*Putala maculata.*

abdominal segmental margins ochraceous; legs with longitudinal piceous lines; tegmina and wings hyaline, the venation fuscous; tegmina with the stigma and scattered apical maculate markings piceous; cephalic process a little upwardly directed; posterior tibiæ profoundly sulcate and armed with five spines.

Length excl. tegm. 8; exp. tegm. 21 millim.

Hab. Nilgiri Hills (*Hampson*). Utakamand (*Atkins. Coll., Brit. Mus.*).

Genus MIASA, nov.

Type, *M. smaragdilinea*, Walk.

Distribution. Oriental and Malayan Regions.

Body elongate; head strongly produced in front, thick and subglobose to a little beyond eyes, then suddenly narrowed into a long straight linear process, which is medially sulcate above and beneath; face elongate, moderately convexly widened apically, its lateral margins carinate and with a strong central longitudinal ridge; rostrum long, about reaching the middle of abdomen; pronotum with the lateral margins moderately laminate, their anterior angles rounded, base very strongly angularly sinuate, the anterior margin centrally angularly produced and medially longitudinally carinate; mesonotum very obsoletely carinate; legs long and slender; posterior femora very short, only about half the length of the posterior tibiæ, which possess about five prominent

spines; anterior femora with a distinct blunt spine near apex; tegmina long, narrow, much longer than body, about apical third with transverse veins, clavus without a transverse vein, inner claval vein very short and terminating a little beyond base; wings about one-third shorter than tegmina, with a few transverse veins on apical area.

This genus is allied to *Dictyopharoides*, Fowl. (Biol. Centr.-Am., Rhynch. Hom. i, p. 44, 1900), from which it may be at once separated by the non-serrate anterior femora, a character omitted in Fowler's diagnosis; it is also allied to the Ethiopian genus *Simotettix*, Stål, but differs by the non-dilated anterior legs.

1782. **Miasa smaragdilinea**, *Walk.* (Elidiptera) *J. Linn. Soc., Zool.* i. p. 86 (1857); *id.* (Dictyiophora) *List Hom. Suppl.* p. 318 (1858).

Ferruginous-brown; head with cephalic process black above, green beneath and on lateral areas, margins of vertex green; face green with the central ridge testaceous; clyeus black, with a broad ochraceous transverse fascia near its base and with two small central spots of the same colour; anterior marginal area and posterior lateral angles of pronotum, a broad central fascia to mesonotum, and central and lateral fasciæ to abdomen above pale green or ochraceous; body beneath black; lateral areas of sternum and legs ochraceous; anterior tibiæ with a prominent subapical creamy-white annulation; posterior margins of sternal

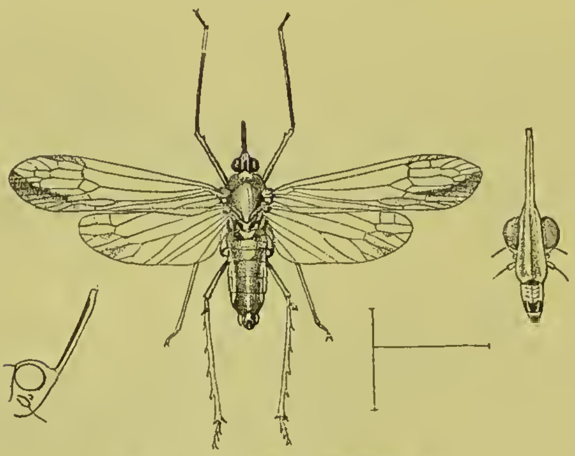

Fig. 108.—*Miasa smaragdilinea.*

segments, metanotum, and posterior abdominal segmental margins stramineous; coxæ and trochanters black; tegmina and wings hyaline, the venation ochraceous or fuscous; tegmina with the posterior margin broadly dull ochraceous, the stigma and an oblique apical streak fuscous; wings with an apical fuscous spot; cephalic process as long as remainder of head and pronotum together.

Length ceph. process, angle from eyes to apex 2½; eyes to apex abdom. 9; exp. tegm. 27 millim.

Hab. Tenasserim; Myitta (*Doherty*).—Malacca; Mt. Ophir (*Wallace, Brit. Mus.*).

Genus UDUGAMA.

Anagnia, *Stål, Stett. ent. Zeit.* xxii, p. 149 (1861); *id. Hem. Afr.* iv, pp. 151 & 159 (1866); *Atkins. J. A. S. Beng.* lv, p. 24 (1886), nom præocc.
Udugama, *Melich. Hom. Faun. Ceylon*, p. 27 (1903).
Kareol, *Kirk. Entomologist*, 1904, p. 279.

Type, *U. splendens*, Germ.

Distribution. Oriental and Malayan Regions.

Head prominent before the eyes, where it is broad and centrally and laterally carinate; face elongate, tricarnate; clypeus marginate, centrally carinate; pronotum short, centrally carinate, anteriorly obtusely prominent at base of head, and then sinuate to anterior angles, which are subacute, posteriorly angularly emarginate; mesonotum tricarinate; legs long and slender; anterior femora a little dilated beneath and with a distinct blunt spine near apex; posterior tibiæ with seven spines, one of them at extreme base; rostrum long, passing posterior coxæ; tegmina much longer than abdomen, about apical third with transverse veins, the veins considerably bifurcate on apical margin, and a few small transverse veins on apical area.

Melichar has redescribed Stål's genus *Anagnia* under the name of *Udugama*. As, however, the name *Anagnia* is preoccupied (Walker, 1854), Melichar's is available, and Kirkaldy's proposed new name unnecessary.

1783. **Udugama splendens**, *Germ.* (Flata) *Thon's Arch.* ii, 2, p. 48 (1830); *Westw.* (Pseudaphana) *Tr. Linn. Soc.* xviii. p. 151 (1841); *Stål* (Anagnia), *Stett. ent. Zeit.* xxii, p. 149 (1861); *Atkins. J. A. S. Beng*, lv, p. 25 (1886).
Udugama exoleta, *Melich. Hom. Faun. Ceylon*, p. 28, t. i, f. 7, *a, b* (903).

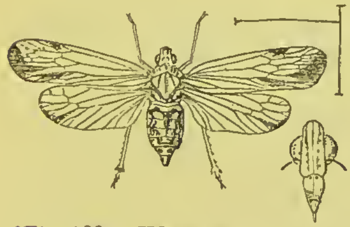
Fig. 109.—*Udugama splendens.*

Above brownish-ochraceous, the head and sometimes pronotum a little paler; mesonotum castaneous-brown with the carinations flavescent; abdomen above with broad central and lateral macular castaneous fasciæ, becoming fused towards apex; face ochraceous, with lateral longitudinal series of small fuscous spots; clypeus ochraceous, its apex castaneous; body beneath and legs ochraceous; sternal spots, basal two-thirds of abdomen, mottlings to femora, bases to tibiæ, and spines to posterior tibiæ castaneous; tegmina and wings hyaline, the

venation fuscous; tegmina with a large stigmatic spot, the apical margin more or less continued on apex of inner margin, and a claval streak fuscous; wings with a small fuscous apical streak; rostrum just passing posterior coxæ; posterior tibiæ with seven spines, the basal one very short.

Length excl. tegm. 7 to $9\frac{1}{2}$; exp. tegm. 20 to 25 millim.

Hab. Bombay. Ceylon; Kandy (*Green*). Burma; Bhamo (*Fea*).—Java. Philippines.

Genus CENTROMERIA.

Centromeria, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 745; *Atkins. J. A. S. Beng.* lv, p. 25 (1886).

Type, *C. longipennis*, Walk., from the Philippines.

Distribution. Oriental, Malayan, and Ethiopian Regions.

Body somewhat elongate; head moderately and upwardly produced in front of eyes, its apex gradually narrowed, vertex acuminate before the eyes; face elongate, tricarinate, the median ridge very strongly produced, the lateral ridge on each side somewhat obsoletely developed from behind eyes, and between this and the carinate margin a very distinct longitudinal groove; clypeus centrally carinate; pronotum short, with a single central carination, posteriorly broadly angularly sinuate; mesonotum tricarinate; tegmina longer than the body, gradually widened towards apex, about apical third with numerous transverse veins, veins of the clavus united beyond middle, interior ulnar vein bifurcate at about same distance from base, radial vein bifurcate a little beyond middle of tegmen; stigma elongate or oblong, with oblique veins; wings with transverse veins on apical area; legs long and slender, anterior femora with a minute acute spine near apex; rostrum long, passing posterior coxæ; posterior tibiæ long and spined.

A. *Tegmina and wings hyaline, without fasciæ or spots.*

a. *Head with a distinct cephalic process.*

a. Cephalic process about as long in front of eyes as length from anterior margins of eyes to base of head.

1784. **Centromeria speilinea**, *Walk.* (Dictyophora) *J. Linn. Soc., Zool.* i, p. 84 (1856); *Atkins.* (Centromeria) *J. A. S. Beng.* lv, p. 25 (1886).

Head above and pronotum reddish-ochraceous; head with the marginal ridges to vertex and a central line to cephalic projection green; a submarginal lateral fascia and central ridge to pronotum green; mesonotum pale reddish-ochraceous, with the anterior lateral margins, the posterior angle, and the three longitudinal

ridges green; abdomen green, its apex greenish-ochraceous; face green, the central ridge purplish; body beneath and legs pale green or greenish-ochraceous; apices of the femora, apices of anterior tibiæ, the anterior tarsi, and apex of rostrum black or piceous; tegmina and wings hyaline, the venation brownish-olivaceous; tegmina with the stigma fuscous; cephalic process recurved, ascending, about as long as vertex, its apex subacute; rostrum about reaching the apex of the second abdominal segment; posterior tibiæ with six spines, of which the three on basal half are smallest.

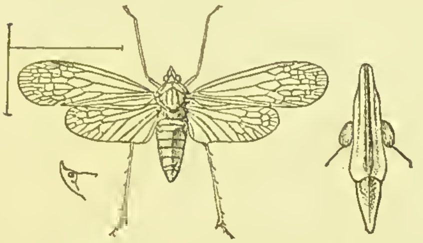
Fig. 110.—*Centromeria speilinea.*

Length excl. tegm. 11; exp. tegm. 28 to 29½ millim.

Hab. Tenasserim; Myitta (*Doherty*).—Malay Peninsula; S.E. Borneo.

b. Cephalic process longer in front of eyes than length from anterior margins of eyes to base of head.

1785. **Centromeria cephalica**, sp. n.

Body and legs ochraceous, in fresh specimens probably green; tegmina and wings with the venation dull ochraceous; tegmina with the stigma very pale ochraceous; head prominently produced in front and a little upwardly recurved, the marginal ridges very prominent and with a central carination which extends only a short distance from base; longer in front of eyes than from anterior margins of eyes to base; anterior femora practically without a discernible spine at apex; posterior tibiæ with five spines, the basal spine small.

Length excl. tegm. 9; exp. tegm. 23 millim.

Hab. Nilgiri Hills (*Hampson*).

b. *Head more or less truncate in front, without a cephalic process.*

1786. **Centromeria viridistigma**, *Kirby* (Dictyophora), *J. Linn. Soc., Zool.* xxiv, p. 135 (1891); *Melich.* (Dictyophara) *Hom. Faun. Ceylon,* p. 23 (1903).

Head above green, disk of vertex and apex purplish-red; pronotum green, lateral margins and broad posterior marginal fasciæ (not meeting centrally) purplish-red; mesonotum green, the disk between the central carinæ purplish-red; abdomen above green or in some specimens greenish-ochraceous; face bright green, the central ridge purplish-red; body beneath greenish or greenish-ochraceous; lateral margins of sternum purplish-red; legs testaceous, bases of femora more or less green; tarsi piceous;

tegmina and wings hyaline, the venation fuscous-brown; tegmina with the stigma greenish, the apical area very slightly infuscate; head angularly produced, but with no distinct cephalic process; rostrum passing the posterior coxæ; posterior tibiæ with four spines and a minute basal tubercular projection; anterior femora with a distinct spine near apex.

Length excl. tegm. 8 to 9; exp. tegm. 20 millim.

Hab. Ceylon (*Lewis*); Peradeniya, Kandy (*Green*).

B. *Tegmina and wings fasciate and maculate.*

1787. **Centromeria simulata**, sp. n.

Head ochraceous, two small central spots on vertex, a central longitudinal line to front, two transverse lines on each lateral area before eyes, central longitudinal ridge and a transverse subapical fascia to face castaneous; clypeus castaneous; pronotum castaneous-brown, with a broad central ochraceous fascia; mesonotum castaneous-brown, with the narrow central carination and the posterior angle ochraceous; body piceous, with a double series of large discal and a series of smaller spots on each lateral margin ochraceous; body beneath dark castaneous-brown; rostrum, coxæ, legs, and some maculate markings to abdomen ochraceous; an apical annulation to anterior femora, posterior femora (excluding two apical ochraceous annulations), suffusions to tibiæ, and apex to rostrum dark castaneous-brown; tegmina and wings hyaline, the venation brown; tegmina with the stigma, apical margin extending to about outer fourth of posterior margin, and claval area fuscous-brown; wings with an irregular elongate fuscous-brown spot on outer margin; head with a distinct cephalic process upwardly directed, and about as long as space between outer margins of eyes; rostrum about reaching posterior coxæ; vertex of head foveate on each side of central ridge between eyes.

Length excl. tegm. 10; exp. tegm. 31 millim.

Hab. Assam; Margherita (*Atkinson Coll.*, *Brit. Mus.*).

The markings to the tegmina and wings of this species strongly resemble those of *Udugama splendens*, Germ.

Genus DICTYOPHARINA.

Dictyopharina, *Melich. Hom. Faun. Ceylon*, p. 25 (1903).

Type, *D. viridissima*, Melich.

Distribution. Oriental Region *.

Head not produced in a cephalic process, a little longer than breadth between eyes, rounded in front, carinate medially and

* This genus will probably be found to include a large number of species hitherto treated as forming a section of *Dictyophara*, and in that case it will also have a Neotropical and Ethiopian distribution.

laterally; face three or four times as long as broad, with three longitudinal ridges which converge towards the clypeus, the lateral ridges unite anteriorly in a curve with the central one: pronotum slightly arched in front, broadly concave posteriorly, medially longitudinally ridged; mesonotum with three longitudinal carinations, the lateral ridges somewhat angularly sinuately waved and forked, the outer fork short and straight, the inner longer and stronger; tegmina hyaline, in structure as in *Dictyophora*, but the costal margin a little more arched, three long veins in basal area divided near middle, in apical third numerous transverse veins; stigma long, formed of six veins including the stigmatal border; posterior tibiæ with six or seven spines; anterior femora with a short acute spine near apex.

1788. **Dictyopharina viridissima**, *Melich. Hom. Faun. Ceylon*, p. 26 (1903).

Green in fresh specimens, ochraceous in discoloured ones; tegmina and wings hyaline with the venation green or ochraceous; head a little longer than breadth between eyes, the vertex broad;

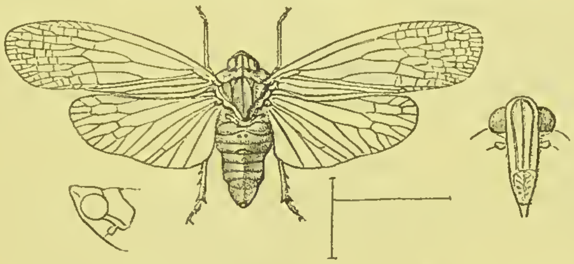

Fig. 111.—*Dictyopharina viridissima*.

rostrum passing the posterior coxæ; tegmina with the apical third strongly transversely veined.

Length excl. tegm. 8 to 11; exp. tegm. 24 to 30 millim.

Hab. Bombay (*Brit. Mus.*); Nilgiri Hills (*Hampson*). Ceylon (*Green*).

1789. **Dictyopharina consanguinea**, sp. n.

Allied to *D. viridissima*, Melich., in coloration, but differing by the head, in which the vertex is much more elongate and the lateral ridges more sinuate; the lateral third of the tegmina is also very distinctly less transversely veined; the posterior tibiæ are also less distinctly spined on their basal areas, where the spines are so obsolete as to make them appear less in number than in Melichar's species.

Length excl. tegm. 8 to 11; exp. tegm. 22 to 30 millim.

Hab. Burma; Myingyan (*Bingham, Brit. Mus.*). Pegu (*Atkinson Coll.*). Tenasserim; Myitta (*Doherty*).

Genus SYMPLANA.

Symplana, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 136 (1891); *Melich. Hom. Faun. Ceylon*, p. 19 (1903).

Type, *S. viridinervis*, Kirby.

Distribution. Ceylon.

Head and thorax above broadly and profoundly longitudinally sulcate; head produced in a somewhat upcurved cephalic process before the eyes, sulcate above, the edges emarginate; face long, with a central and two lateral carinæ, one on each side, the last only extending to about middle from apex, and for this distance the edges are also carinate, giving the appearance of five carinæ as described by Kirby; legs of moderate length, posterior tibiæ with a single spine placed beyond middle; tegmina long and slender, not apically ampliated, with longitudinal simple veins, on about apical fifth with transverse, oblique, and longitudinal veinlets; clavus without a transverse vein; wings with about two transverse veins near apex.

I have followed Kirby and Melichar in enumerating this genus among the *Dictyopharinæ*, but I do so with considerable doubt and hesitation.

1790. **Symplana viridinervis**, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 136, t. vi, f. 11 (1891); *Melich. Hom. Faun. Ceylon*, p. 19 (1903).

Greenish in fresh specimens, ochraceous in older or cabinet examples; the central sulcation to the head and thorax above sanguineous; body beneath and legs a little paler in hue, apices of the tarsi piceous; tegmina subhyaline, somewhat talc-like, the venation ochraceous, the edge of inner margin sanguineous, a double series of transverse veins a little before apex, the outermost straight, the inner series obliquely angulate, beyond these transverse series the upper portion of the apical area is obliquely and the lower portion longitudinally veined; wings a little paler and more hyaline than the tegmina.

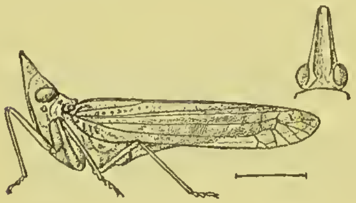

Fig. 112.—*Symplana viridinervis.*

Length excl. tegm. 6; exp. tegm. 13 millim.

Hab. Ceylon; Pundaluoya (*Green*).

Dictyophara fuminervis, *Léth. Bull. Soc. Zool. Fr.* 1892, p. 208.

I have failed to identify this species. The characters given of "pronotum unicarinatum" and the posterior tibiæ as "quinquespinosis" separate it from any species of *Dictyophara* here enumerated, and it may belong to another genus altogether.

Subfamily IV. CIXIINÆ.

Cixiida, *Stål, Hem. Afr.* iv, p. 129 (1866).
Cixiina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 746; *Atkins. J. A. S. Beng.* lv, p. 31 (1886).
Cixiidæ, *Melich. Hom. Faun. Ceylon*, p. 30 (1903).

The characters of this subfamily have already been fully detailed (*ante*, p. 176). It is principally distinguished from the *Dictyopharinæ* by the position of the ocelli, of which there are usually three, and one of them placed on the apex of the face; this facial ocellus is stated by Stål to be very rarely wanting, and if wanting the sides of the clypeus are convex and not carinate. From the subfamilies which immediately follow it, it is to be at once distinguished by the length of the claval vein, which does not reach the apex.

Synopsis of Genera.

A. Mesonotum with five longitudinal ridges .... OLIARUS, p. 256.
B. Mesonotum with three longitudinal ridges.
  a. Face broad, longer than broad, more or less convexly ampliated or broadened posteriorly, centrally and laterally carinate.
    a. Tegmina with the inner margin continuous, not widened at its apex.
      a'. Tegmina with costal margin continuous, not sinuate.
        *a*². The three longitudinal veins to tegmina not united near middle of tegmen .... CIXIUS, p. 259.
        *b*². The three longitudinal veins to tegmina united near middle by two transverse veins.
          *a*³. Vertex of head as long as broad, its lateral margins raised and laminate .... ANILA, p. 260.
          *b*³. Vertex of head broader than long, its lateral margins ridged ...... KUVERA, p. 261.
      b'. Tegmina with costal margin sinuate near middle.
        *a*². Two series of transverse veins to tegmina .... KIRBYANA, p. 262.
        *b*². Veins to tegmina longitudinal and furcate .... MUNDOPA, p. 263.
    b. Tegmina with the apical area at inner margin more or less posteriorly produced.
      a'. Vertex of head with its anterior margin truncate .... PTOLERIA, p. 265.
      b'. Vertex of head with its anterior margin sinuate and the lateral angles prominent .... BARMA, p. 266.

b. Face broadened posteriorly, but anteriorly straightly narrowed and produced beyond eyes .... CHRONEBA, p. 267.
c. Face long, narrow, lateral margins strongly carinate, narrowed towards clypeus ...... MALANDEVA, p. 268.
d. Face long, narrow, lateral margins strongly carinate, more or less narrowed and compressed between eyes .... BRIXIA, p. 269.

Genus OLIARUS.

Oliarus, *Stål, Berl. ent. Zeitschr.* vi, p. 306 (1862); *Hem. Afr.* iv, pp. 164 & 166 (1866); *Atkins. J. A. S. Beng.* lv. p. 32 (1886); *Melich. Hom. Faun. Ceylon,* p. 30 (1903).
Triopsis (part.), *Sign. Ann. Soc. Ent. Fr.* 1860, p. 187.

Type, *O. walkeri*, Stål.

Distribution. Ethiopian, Oriental, Malayan, and Eastern Palæarctic Regions.

Head somewhat narrower than the thorax, angularly emarginate at the base, vertex concave, varying in length and breadth; face and clypeus together elliptical, with a distinct median longitudinal ridge running through them; the lateral margins rounded, slightly dilated; face with an apical ocellus; margins of clypeus ridged; eyes slightly or scarcely sinuated beneath; antennæ very short, inserted beneath the eyes, first joint concealed, second small, somewhat globose; pronotum very short, posteriorly deeply angularly sinuate; mesonotum with five longitudinal ridges; tegmina rounded at apices, radial and exterior ulnar veins contiguous at their bases, radial and anterior ulnar veins bifurcating before the middle of the tegmen; legs moderately long, posterior tibiæ armed with two or three spines.

A. *Tegmina with the cellular areas without minute setose fuscous spots.*

1791. **Oliarus walkeri**, *Stål* (Cixius), *Freg. Eug. Resa, Hem.* p. 272 (1859); *id.* (Oliarus) *Berl. ent. Zeitschr.* vi. p. 306 (1862); *Atkins. J. A. S. Beng.* lv. p. 33 (1886).

Obscurely testaceous; face and legs flavous-testaceous; tegmina pale vinaceous-hyaline, veins concolorous, remotely punctured with fuscous beyond the middle, the five apical transverse veins infuscated; stigma pale testaceous-yellow, inwardly narrowly fuscous; head flavous-testaceous, vertex almost twice as long as broad, with two ridges running forward and converging from the middle; face with the oval clypeus narrowed at base and apex, a single forked ridge

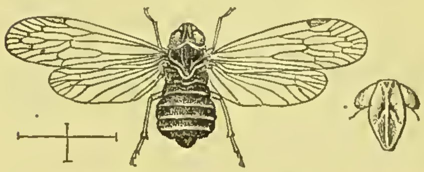

Fig. 113.—*Oliarus walkeri.*

at the base itself; thorax testaceous; pronotum very short, posteriorly angularly sinuate; mesonotum with five longitudinal ridges which are paler in colour, and of which the lateral pair somewhat diverge towards the apex; body beneath pale flavo-testaceous; sternum piceous.

Length excl. tegm. 4; exp. tegm. 12 millim.

Hab. A species recorded from the Malay Peninsula and the Philippine Islands, just entering our faunistic area on its south-eastern frontier. I am indebted to Dr. Aurivillius for an opportunity of figuring it.

1792. **Oliarus stigma,** *Motsch.* (Cixius) *Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 105 (1863); *Melich. Hom. Faun. Ceylon*, p. 30 (1903).

Body above pale castaneous; ridges to head, pronotum, posterior margin of mesonotum, and abdominal segmental margins pale ochraceous; body beneath brownish-ochraceous; abdominal segmental margins pale ochraceous, abdominal apex piceous; face (excluding margins and central ridge) castaneous; legs ochraceous; tegmina creamy-hyaline, the veins fuscous, on about basal half and near apex alternately broken with pale ochraceous; stigma fuscous, ochraceous at base; the tegmina are also ornamented with some irregularly shaped fuscous spots, situate two before middle and about six on apical area, and with a posterior apical marginal fascia of the same colour, the marginal edges of the tegmen also fuscous; wings hyaline, the venation and apical marginal edge fuscous; medial ridge to face and clypeus acute, forked at anterior margin of face; mesonotum with five medial longitudinal carinate lines, those on each side of the central one converging and not reaching the anterior margin; posterior tibiæ with two or three very short spines before middle.

Length excl. tegm. 5½ to 6; exp. tegm. 16 to 19 millim.

Hab. Ceylon (*Green*).

1793. **Oliarus tabrobanensis,** *Melich. Hom. Faun. Ceylon*, p. 31 (1903).

I only know this species by Melichar's description, of which the following appear to be the salient points:—Yellowish-brown; face two and a half times as long as width between eyes, with a transverse ridge strongly acutely angulated and interrupted in front; fore part of head rusty-brown, on its lower angles there is a yellowish-white transverse streak on each side; antennæ piceous; ocelli distinct, pale yellowish, shining; pronotum narrow, posteriorly obtusely angularly excavate, pale yellowish-brown, thoracic folds rusty-brown, the outward curved lateral keels paler; mesonotum brown with five rusty-yellow ridges; tegmina hyaline with yellowish veins, which are coloured in places with piceous and are set with fine brown granules from which emerge short erect brown hairs, on the inside of the yellowish costal vein

are three piceous longitudinal streaks, but the marginal vein is not setosely granulate; stigma three-cornered, piceous, pale yellowish in front, in the apical area are several brown spots, especially on apical margin, apical veins mostly brown, transverse veins infuscate, closing marginal vein of clavus piceous; wings hyaline with brown veins; abdomen yellowish-brown with the segmental margins paler; legs rusty-yellow with indistinct darker longitudinal stripes.

Length "6 to 6½ millim."

Hab. Ceylon (*Green*).

The type is stated to be in Kirkaldy's collection, and is therefore presumably at Honolulu.

1794. **Oliarus caudatus**, *Walk.* (Cixius) *Ins. Saund., Hom.* p. 43 (1858); *Atkins.* (Cixius?) *J. A. S. Beng.* lv, p. 32 (1886).

Body pale castaneous-brown; ridges to head, pronotum, carinations to mesonotum, abdominal segmental margins, and legs ochraceous; frontal area of face (excluding margins and central ridge) piceous; tegmina hyaline, the venation fuscous; stigma

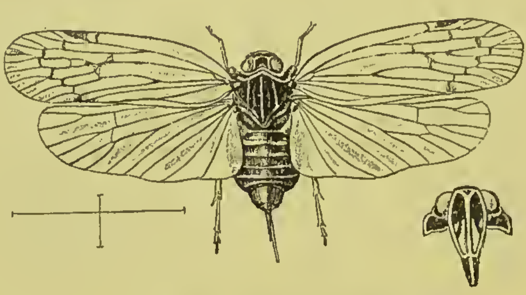

Fig. 114.—*Oliarus caudatus.*

fuscous, pale at base, transverse veins on apical areas infuscate, and two or three very obscure small fuscous spots at apical margin, the longitudinal veins are minutely fuscously setosely maculate; wings hyaline, the venation palely fuscous; posterior tibiæ with two or three distinct spines, one near middle prominent; mesonotum with five longitudinal carinate lines, those on each side of the central one slightly converging and not reaching anterior margin.

Length excl. tegm. 6; exp. tegm. 16 to 20 millim.

Hab. "North Hindostan" (*fide Walker*).

1795. **Oliarus fusconebulosus**, sp. n.

Head, pronotum, mesonotum, and sternum very pale castaneous; legs ochraceous; abdomen black; tegmina pale creamy, semi-opaque, the veins marked with small fuscous setose spots, three transverse

fuscous fasciæ, of which the first, complete and nearly straight, is placed a little beyond base, the second curved posteriorly, attenuated, and not quite reaching posterior margin, is situate a little beyond middle, the third short at apex of stigma, apical margin also fuscous; stigma ochraceous; wings very pale fuliginous and semi-hyaline, a little darker on apical areas; mesonotum with five longitudinal ridges; vertex of head with a distinct longitudinal ridge; ridges to face and clypeus well developed.

Length excl. tegm. 5; exp. tegm. 15 millim.

Hab. Burma; Momeit (*Doherty*).

B. *Tegmina with the cellular areas thickly sprinkled with minute setose fuscous spots.*

1796. **Oliarus punctipennis**, sp. n.

Head, pronotum, and mesonotum castaneous or piceous-brown; abdomen above brownish-ochraceous, the lateral and apical areas piceous; body beneath, rostrum, and legs brownish-ochraceous, the segmental abdominal margins piceous; disk of face (excluding carina) castaneous; tegmina semi-hyaline with very numerous minute setose fuscous spots, both on the veins and in the cellular areas; the venation, stigma, some irregular longitudinal apical spots, and the claval and posterior margins fuscous; wings hyaline, the venation fuscous; mesonotum with five distinct longitudinal carinate lines, the central one most pronounced; face and clypeus centrally longitudinally carinate, their lateral margins acute; rostrum very long, its apex reaching the apical abdominal segment; pronotum strongly centrally longitudinally ridged, an oblique carinate line near each lateral margin, and a transverse sinuate carinate line connecting them; posterior tibiæ with two or three spines, one near middle very prominent.

Length excl. tegm. 8½ to 10½; exp. tegm. 20 to 25 millim.

Hab. Sikhim (*Ind. Mus.*); Mungphu (*Atkinson Coll.*, *Brit. Mus.*). Nilgiri Hills (*Hampson*). Burma; Ruby Mines and Karen Hills (*Doherty*).

Genus CIXIUS.

Cixius, *Latr. Hist. Nat. Ins.* xii, p. 310 (1803–4); *id. Gen. Ins.* iii, p. 166 (1807); *Stål, Hem. Afr.* iv, p. 164 (1866); *Atkins. J. A. S. Beng.* lv, p. 31 (1886); *Melich. Hom. Faun. Ceylon*, p. 30 (1903).

Type, *C. nervosus*, Linn., a Palæarctic species.

Distribution. Probably nearly universal.

Head somewhat narrower than the pronotum, short, roundly sinuated at base, vertex moderately concave, a little narrowed anteriorly, its lateral margins strongly upwardly carinate; face longer than broad, gradually somewhat convexly broadened

posteriorly, centrally and laterally strongly carinate, with an ocellus on apex; clypeus continuously carinate with face both laterally and medially; eyes very slightly sinuate beneath; antennæ inserted beneath the eyes, second joint small, subglobose; pronotum very short, posteriorly deeply angularly emarginate; mesonotum tricarinate; legs moderate in length, posterior tibiæ armed with two or three spines; tegmina with the lateral margins parallel, interior ulnar and radial veins bifurcating towards apical areas.

1797. **Cixius pilifer**, *Melich. Hom. Faun. Ceylon*, p. 30 (1903).

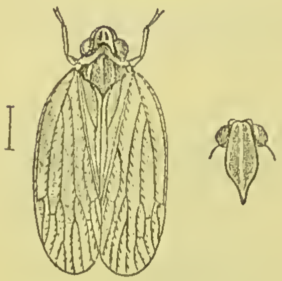

Fig. 115.—*Cixius pilifer.*

Body and legs ochraceous; tegmina pale tawny-yellow, anterior and apical margins and stigma flavescent, veins somewhat thickly covered with longly setose granules; wings pale lacteous, the veins a little darker; eyes more or less piceous; posterior tibiæ with two short spines.

Length incl. tegm. 4 millim.

Hab. Ceylon; Pattipola (*Mus. Hongrois*).

I am indebted to Dr. Horváth for two cotypes of this species.

Genus **ANILA**, nov.

Type, *A. fuliginosa*, Dist.

Distribution. Burma.

Head narrower than pronotum; vertex as long as broad, with the lateral margins raised and laminate before and at inner margins of eyes, its base concavely emarginate; face longer than broad, truncate anteriorly (where it is narrowest) and concavely emarginate posteriorly (where it is broadest), centrally and marginally carinate; clypeus moderately convex, obscurely centrally carinate, its lateral margins distinctly acutely carinate; pronotum very narrow, its base subangularly emarginate; mesonotum tricarinate; legs of moderate length, posterior tibiæ with two short spines, basal joint of posterior tarsi long; tegmina moderately long, somewhat narrow, apices rounded, claval vein not reaching apex, third longitudinal vein bifurcate before middle of tegmen, costal area with a single oblique transverse vein, two transverse veins terminating the three discal longitudinal veins and a dislocated series of transverse veins crossing tegmen before apex; stigma somewhat long, outwardly angularly attenuated; wings broader than tegmina.

I place this genus in the *Cixiinæ*, by the character of the claval vein not reaching apex.

1798. **Anila fuliginosa.**

Body above castaneous-brown, mesonotum somewhat piceous, body beneath and legs brownish-ochraceous; tegmina semi-opaque, greyish-brown, with fuliginous suffusions, which are mostly trans-

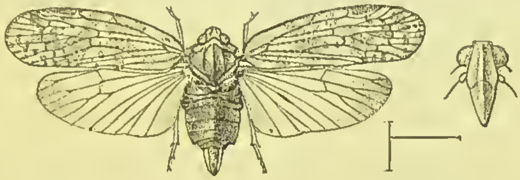

Fig. 116.—*Anila fuliginosa.*

verse and shown in figure better than by words, veins somewhat thickly covered with setose fuscous granules; wings semi-hyaline, greyish-brown, fuliginous at apices.

Length excl. tegm. 5; exp. tegm. 16 millim.

Hab. Burma; Ruby Mines (*Doherty*).

I received two specimens of this species from Mr. Doherty.

Genus **KUVERA**, nov.

Type, *K. semihyalina*, Dist.

Distribution. Oriental Region.

Head narrower than pronotum, vertex broader than long, its lateral margins ridged and strongly concavely excavated for the reception of the eyes; face subquadrate, only slightly longer than broad, its lateral margins ampliately acutely recurved, and with a central ridge not reaching anterior margin; clypeus with a central ridge, and its lateral margins distinctly acutely carinate; pronotum very short, with a prominent central ridge, its base angularly emarginate; mesonotum very large, tricarinate; legs somewhat long and slender, posterior tibiæ with two spines, posterior tarsi with the basal joint very long; tegmina with their apices somewhat conically rounded; costal membrane broad, without transverse veins, lower basal longitudinal vein forked, three discal transverse veins beyond middle, and a curved irregular series of transverse veins before apex, defining two sets of cellular areas, the apical areas numerous and continued to stigma; claval vein not reaching apex.

1799. **Kuvera semihyalina**, sp. n.

Vertex of head and pronotum ochraceous; mesonotum and abdomen castaneous-brown, posterior margins of metanotum ochraceous; body beneath castaneous-brown; anterior and lateral margins of face and the legs brownish-ochraceous; tegmina and

wings pale semi-hyaline, the venation mostly pale fuscous; tegmina crossed before middle by a curved, slightly broken,

Fig. 117.—*Kuvera semihyalina.*

macular fuscous fascia; stigma piceous, inwardly margined with ochraceous.

Length excl. tegm. 5; exp. tegm. 16 millim.

Hab. Burma: Ruby Mines (*Doherty*).

Genus KIRBYANA, nom. n.

Kirbya, *Melich. Hom. Faun. Ceylon*, p. 37 (1903), nom. præocc. in Lepid. & Dipt.

Type, *K. pagana*, Melich.

Distribution. Ceylon.

Head with the semi-globular eyes narrower than pronotum; face rather longer than broad, elongate, quadrangular, smooth, carinate at sides and middle, at anterior margin angularly indented, longer than breadth between eyes, nearly as long as clypeus, expanded and broadest at clypeus; clypeus large, carinate at middle and sides; eyes longly oval, slightly concave beneath; antennæ short, second joint strongly cylindrical; ocelli distinct near anterior margins of eyes; pronotum very narrow, scarcely half as long as the vertex; mesonotum nearly twice as long as pronotum and vertex together, tricarinate; tegmina placed vertically, apical margin slightly convex; three discal longitudinal veins, of which the upper and lower are forked; two series of transverse veins in middle and apical areas, the latter much more complete; abdomen laterally compressed; legs simple; posterior tibiæ not spined.

1800. **Kirbyana pagana**, *Melich.* (Kirbya) *Hom. Faun. Ceylon*, p. 38, t. ii, f. 1 *a, b, c.*

Body laterally compressed; vertex, middle of pronotum and mesonotum yellowish, outer sides or vertical ridges bordered with brown, at the end of vertical ridge, but on its inner side, a small brown spot; face yellowish marbled with numerous brown blotches, middle carina paler, lateral ridges with two pale spots; clypeus yellow with indistinct brown stripes; ocelli ruby-red;

tegmina yellowish-brown, in middle of costal margin a large pale marginal spot round which the corium is darker-coloured, the veins and costal and apical marginal veins white; all the veins with black granules, as well as costal margin, which is white until it runs into the apical marginal vein, black spots at the apices of apical veins, a series of larger black spots are found on the claval vein and also on the inner bifurcating veins; abdomen and legs yellowish-brown, the tibiæ longitudinally striped with brown.

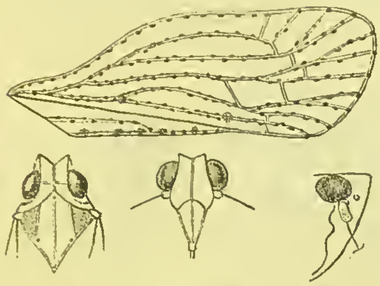
Fig. 118.—*Kirbyana pagana.*

Length "♀, 5½ millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

I only know this genus and species from Melichar's descriptions and figures.

Genus **MUNDOPA**, nov.

Type, *M. cingalensis*, Dist.

Distribution. Oriental and Malayan Regions.

Head considerably narrower than pronotum, lateral margins of vertex ampliately raised and apically subacute, giving the anterior margin an appearance of concavity, and possessing a central apical ridge; face elongate, moderately posteriorly ampliate, with a central longitudinal ridge, and the lateral margins strongly carinate, clypeus with a central ridge, base of head transversely sinuate; pronotum very small with prominent lateral ridges; mesonotum tricarinate; legs of moderate length, femora moderately thickened, posterior tibiæ unarmed, basal joint of posterior tarsi long; tegmina broadened towards apex, their costal margins moderately arched and convex on basal areas, and then distinctly slightly concavely sinuate near to or a little beyond middle, all the venation (excluding cellular terminations) longitudinal, those on apical areas mostly bifurcate; wings broader than tegmina; a very distinct basal ocellus to face.

The Bornean species described by Walker as *Cixius dotatus* belongs to this genus.

In superficial appearance *Mundopa* has much in common with the Neotropical genus *Bothriocera*, Burm.

1801. **Mundopa cingalensis**, sp. n.

Body above piceous; head, pronotum, body beneath, and legs ochraceous; sternum and abdomen more or less suffused with brown or piceous-brown; face and clypeus piceous, with their

lateral margins ochraceous; tegmina very pale stramineous, extreme basal area and the apical area (excluding apical margin) very pale fuscous, the inner disk of the fuscous apical area is also

Fig. 119.—*Mundopa cingalensis.*

much paler, stigma piceous; wings pale fuliginous, with paler streaks at base of costal margin and on outer area; vertex of head a little piceous anteriorly, where it possesses a short, robust, medial ridge; pronotum posteriorly very strongly angularly emarginate; basal ocellus to face prominently distinct.

Length excl. tegm. 3; exp. tegm. 10 millim.

Hab. Ceylon; Bogawantalawa (*Green*).

1802. **Mundopa greeni**, sp. n.

Body above piceous, ridges to head and pronotum ochraceous; body beneath piceous, the carinate margins to face and the legs ochraceous; tegmina pale obscure stramineous, a very broad apical margin and a narrower costal area fuscous-brown, extreme costal and apical margins ochraceous; wings very pale fuliginous, with darker suffusions on apical and anal areas; vertex of head with the central ridge extending from apex to about one-fourth from base, where it joins an obscure transverse ridge, its lateral margins very strongly upwardly laminately carinate; pronotum very narrow, posteriorly strongly, somewhat concavely emarginate; abdominal segmental margins above palely obscurely ochraceous.

Length excl. tegm. 3; exp. tegm. 10 millim.

Hab. Ceylon (*Green*, *Brit. Mus.*).

1803. **Mundopa myittæ**, sp. n.

Body piceous or brownish-piceous; legs ochraceous; head and pronotum testaceous; tegmina fuscous-brown, the interior disk from beneath radial vein ochraceous; wings fuliginous-brown; vertex of head with the central ridge extending from apex to about one-fourth from base, where it joins a very prominent transverse ridge, which is somewhat centrally finely sulcate; lateral vertical margins strongly upwardly laminately carinate, their edges a little reflexed; mesonotum strongly longitudinally tricarinate, the lateral carinæ converging anteriorly.

Var. The tegmina almost uniformly fuscous-brown, the basal ochraceous coloration being practically absent.

Length excl. tegm. $2\frac{1}{2}$; exp. tegm. 10 millim.

Hab. Tenasserim; Myitta (*Doherty*).

1804. **Mundopa dohertyi**, sp. n.

Body and legs ochraceous, abdomen (excluding base) piceous; tegmina very pale ochraceous, semi-opaque; extreme margins (excluding base of posterior margin) pale fuscous, a little darker on costal margin; wings pale hyaline; apices of raised lateral margins to vertex of head very acutely prominent, the disk with a central ridge continued from apex to a transverse ridge between the eyes; mesonotum prominently tricarinate; tegmina distinctly sinuated before middle of costal margin.

Length excl. tegm. 3; exp. tegm. $8\frac{1}{2}$ millim.

Hab. Tenasserim; Myitta (*Doherty*).

1805. **Mundopa fasciata**, sp. n.

Head and thorax above pale castaneous-brown; abdomen above piceous; body beneath and legs ochraceous; anterior area of face and eyes piceous-brown; tegmina semi-opaque greyish-white, the veins darker; stigma piceous, from beneath which a pale fuscous fascia crosses the tegmen; wings somewhat imperfect in specimen described, but apparently with a pale fuscous streak in both the costal and anal areas; tegmina with the costal margin distinctly concavely sinuate near stigma.

Length excl. tegm. 2; exp. tegm. 6 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Mr. Doherty sent me a single specimen of this small but distinct species.

Genus **PTOLERIA**.

Ptoleria, *Stål, Berl. ent. Zeitschr.* iii, p. 321 (1859); *Melich. Hom. Faun. Ceylon*, p. 36 (1903).

Type, *P. arcuigera*, Stål.

Distribution. Ceylon.

Body moderately compressed; head truncate, vertex transverse, its apex truncate, its lateral margins moderately elevated, medially carinate, before eyes somewhat prominent; face concave, narrowed anteriorly, above clypeus on both sides moderately posteriorly ampliate, medially carinate throughout its entire length, its margins dilated; clypeus tricarinate; eyes beneath subsinuate; ocelli two; pronotum short, angularly arcuated; mesonotum large, convex, tricarinate; tegmina more than twice as long as the body, apical area distinctly broadest, apex obliquely rounded,

veins longitudinal, three principal, of these the central longest and before middle furcate, on apical area a nearly continuous series of transverse veins; legs short, posterior tibiæ unarmed, posterior tarsi with the basal joint much the longest.

1806. **Ptoleria arcuigera,** *Stål, Berl. ent. Zeitschr.* iii, p. 321 (1859); *Melich. Hom. Faun. Ceylon,* p. 37, t. i, f. 9 *a, b* (1903).

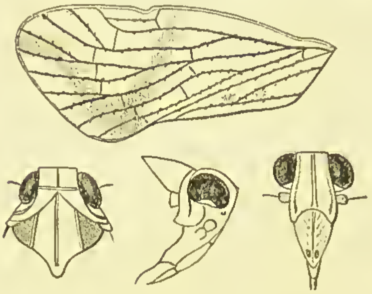

Fig. 120.—*Ptoleria arcuigera.*

Testaceous - white; lateral areas of the mesonotum, small minute scattered spots to tegminal veins, and an arcuated subangulate fascia beyond middle occupying the whole breadth of tegmina and internally convex, upper surface of abdomen (excepting incisures), lateral narrow, short fasciæ to clypeus, small basal and apical spots to femora, and basal and apical annulations to anterior tibiæ fuscous.

"Length $3\frac{3}{4}$; cum tegm. 6 millim."

Hab. Ceylon.

I only know this species by the descriptions of Stål and Melichar, and the figures given by the last writer, which are here reproduced.

Genus **BARMA**, nov.

Type, *B. diversa*, Dist.

Distribution. Oriental and Malayan Regions.

Head a little narrower than pronotum, front strongly emarginate anteriorly, vertex with a transverse impression between the eyes and a longitudinal carination; face obliquely concave, widened posteriorly, centrally longitudinally ridged, the ridge bifurcate at anterior margin; clypeus with a central carination, the lateral margins also ridged, face obliquely truncate before clypeus, head truncate at base; pronotum short; mesonotum with three longitudinal ridges; tegmina very broad, their apices obliquely rounded, a little arched at base of costal margin, veins of radial and outer ulnar areas bifurcating near their bases; legs of moderate length; posterior tibiæ with a short spine near middle.

The Bornean species *Cixius finitus*, Walk., must also be included in this genus.

1807. **Barma diversa,** sp. n.

Head, thorax, and legs ochraceous; abdomen piceous, with a transverse greyish line above near base; tegmina greyish, semi-

opaque, much suffused and spotted with pale fuscous-brown, most prominently so across middle and on apical area; wings mutilated in specimens described, similar in colour and markings to tegmina, but apparently becoming more fuscous towards anal area; anterior

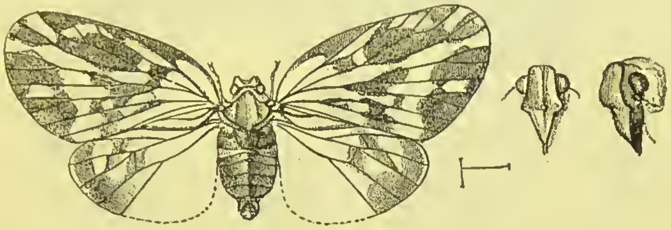

Fig. 121.—*Barma diversa.*

angles of head above prominent and robust, vertex longitudinally carinate and transversely so between the eyes; mesonotum tricarinate; tegmina very broad, their maximum breadth greater than that of wings; face very strongly truncate before clypeus.

Length excl. tegm. 3; exp. tegm. 11 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus CHRONEBA.

Chroneba, *Stål, Berl. ent. Zeitschr.* iii, p. 320 (1859).

Type, *C. pallifrons*, Stål.

Distribution. Ceylon.

Head above and before eyes compressed, produced, and elevated, vertex narrow, long, the lateral margins carinate, medially foliaceously elevate; face and vertex compressed, the first with its base narrowed, beyond middle posteriorly distinctly ampliated, apex strongly straightly narrowed, its margins acute, medially carinate throughout its entire length; clypeus medially carinate, its lateral margins elevated, continuous with margins of face; ocelli placed beneath eyes; pronotum short, angulate, tricarinate, the lateral carinæ most pronounced, diverging; mesonotum obsoletely tricarinate; tegmina longly passing apex of abdomen, apical area distinctly broader and sublobate, the longitudinal veins posteriorly divided into two series by transverse veins; posterior tibiæ with a single spine before middle.

1808. **Chroneba pallifrons**, *Stål, Berl. ent. Zeitschr.* iii, p. 320 (1859); *Melich. Hom. Faun. Ceylon*, p. 40, t. iii, f. 1 *a, b* (1903).

"Above black, beneath with legs yellowish-white; abdomen beneath fuscous, segmental margins pale; apical area of meso-

notum triangularly produced, two spots to clavus (one subbasal, the other apical), a small subapical spot, and another larger costal

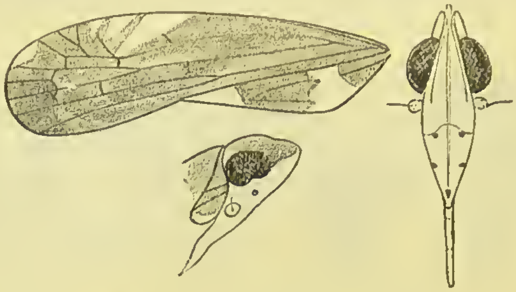

Fig. 122.—*Chroneba pallifrons.*

spot beyond middle of tegmen flavous, the last divided by two transverse black lines" (*Stål*).

"Length $4\frac{1}{3}$; cum tegm. 6 millim."

Hab. Ceylon.

I do not know this species, and have copied Stål's description and Melichar's figures.

Genus MELANDEVA, nov.

Type, *M. ocellata*, Dist.

Distribution. Oriental Region.

Head much narrower than the pronotum, sides of the vertex broadly, upwardly, laminately, convexly produced considerably above each eye, where they form an acute angle, and continued as margins to face, which is long, very concave, narrowed towards clypeus, the margins very finely carinate, and exhibiting a very distinct median ocellus; clypeus short, medially carinate; pronotum short, medially carinate, its lateral margins moderately laminately convex; mesonotum centrally tricarinate; abdomen above with a central longitudinal ridge; rostrum passing the posterior coxæ; legs moderately long and slender, longitudinally grooved, posterior tibiæ without spines; tegmina somewhat broad and ampliated towards apices; stigma long with transverse carinæ, costal membrane without transverse veins, apical and ulnar areas about equally long; wings very much broader than tegmina.

1809. **Melandeva ocellata**, sp. n.

Head, pronotum, body beneath, and legs ochraceous; abdomen castaneous-brown, its segmental margins above and beneath ochraceous; face with two pale piceous streaks on its upper half; extreme margins of process to head and face and the longitudinal

ridges to legs pale piceous; tegmina creamy-white suffused with pale fuscous, the venation dark fuscous, a little paler on apical area; the stigma fuscous, ochraceous at base and apex; the apical areas mostly pale fuscous, a few scattered, short, waved, fuscous spots, three in costal membrane, four in broken sequence beneath it, and two on central disk of ulnar areas, claval area palely infuscate, near outer angle of posterior margin is a large rounded

Fig. 123.—*Melandeva ocellata.*

piceous spot with an ochraceous outer margin and a white central papillate spot; wings pale fuscous with greyish-white suffusions.

Length excl. tegm. 9½; exp. tegm. 30 millim.

Hab. Assam; Khási Hills (*Brit. Mus.*). Burma; Momeit (*Doherty*).

Genus BRIXIA.

Brixia, *Stål, Öfv. Vet.-Ak. Förh.* (1856) p. 162; *id. Hem. Afr.* iv, pp. 166 & 173 (1866); *Atkins. J. A. S. Beng.* lv, p. 33 (1886); *Melich. Hom. Faun. Ceylon*, p. 33 (1903).

Triopsis (part.), *Sign. Ann. Soc. Ent. Fr.* 1860, p. 187.

Type, *B. natalicola*, Stål, from S. Africa.

Distribution. Ethiopian and Oriental Regions.

Head much narrower than the pronotum, vertex narrow, compressed, narrower by half than the eyes, passing over into the face, which is long, gradually narrowed upward, much compressed between the eyes, without or with a very obsolete medial ridge, but with lateral margins strongly carinate, an ocellus at the apex; clypeus with a median ridge and its lateral margins carinate; eyes sinuated beneath; antennæ inserted beneath the eyes, first joint exserted, second longer than thick; pronotum very short, angularly emarginate at base; mesonotum tricarinate; tegmina gradually but distinctly ampliate towards apices, radial and exterior ulnar veins united near their bases; legs of moderate length, simple, posterior tibiæ unarmed.

I have followed Stål's description of his genus.

A. *Tegmina with the veins minutely setosely maculate.*

1810. **Brixia nubila**, *Walk.* (Cixius) *List Hom. Suppl.* p. 80 (1858); *Stål* (Brixia), *Öfv. Vet.-Ak. Förh.* 1862, p. 487; *Kirby* (Cixius), *J. Linn. Soc., Zool.* xxiv, p. 137, t. v, f. 13 (1891); *Melich.* (Brixia) *Hom. Faun. Ceylon*, p. 33 (1903).
Brixia subfasciata, *Stål, Berl. ent. Zeitschr.* iii, p. 320 (1859).

Kirby has given such a minute description of this species that I reproduce it here:—

"Brown; orbits, some lines on the thorax, and the incisions of the abdomen (narrowly) whitish; legs testaceous; tegmina light brown, varied with black and subhyaline markings; all the nervures white and marked with single or double rows of black spots, from each of which proceeds a single hair; at the extremity of each nervure, just before the margin, which is whitish, the extreme outer edge being brown, stands a distinct white spot; the principal subhyaline or whitish markings are firstly two large and one small space on the costa separated by darker spaces, and followed by a large stigma-like mark, which is light brown edged with pale at each extremity, the first of these, which sometimes coalesces with the second after crossing the first nervure, runs down in a point half across the tegmen; below and beyond its lower part stand some black markings, and there is another on the inner margin, surrounded with a clear space; beyond this is an oblique clear spot rather below the middle of the tegmen, and a smaller one near the inner margin, separated by a black spot; beyond the third vitreous spot on the costa a blackish line, forming a slight curve towards the base, runs nearly to the inner margin, it is bordered on the outer concavity with pale; beyond this is a conspicuous oblique black spot on the inner margin, and two small black spots (sometimes connected into a short, slightly zigzag line) about the middle of the tegmen; between the stigmoidal spot and the tip of the tegmina is a large dusky space, with a white dot near its upper edge, and its inner side narrowly edged with pale; beyond it is a white band, more or less divided in two by an oblique spot opposite the hind margin, but not quite extending either to the costa or the inner margin; wings iridescent subhyaline, with brown nervures."

Length excl. tegm. 4 to 4½; exp. tegm. 10 to 12 millim.
Hab. Ceylon; Pundaluoya; Bogawantalawa (*Green*).

1811. **Brixia meander**, *Walk.* (Cixius) *List Hom.* ii, p. 349 (1851); *Stål* (Brixia), *Öfv. Vet.-Ak. Förh.* 1862, p. 487; *Atkins. J. A. S. Beng.* lv, p. 34 (1886).

Somewhat closely allied to the preceding species (*B. nubila*); tegmina with similar setose black dots to the veins; the transverse fasciate-like space crossing tegmen just before middle narrower and more or less continuous to inner margin, more outwardly oblique in direction, with its margins much more angularly waved.

Beyond this prominent differential character the other points of distinction are too small to be adequately described by words.

Length excl. tegm. 4; exp. tegm. 12 millim.

Hab. "East India" (*Brit. Mus.*). Ceylon; Puttalam (*Green*).

The typical specimen labelled "East India" was from the collection made by Archdeacon Clerk.

B. *Tegmina with the veins not minutely setosely maculate.*

1812. **Brixia tortriciformis,** *Kirby, J. Linn. Soc., Zool.* xxiv, p. 138, t. v, f. 12 (1891); *Melich. Hom. Faun. Ceylon,* p. 34 (1903).

Body above brownish; pronotum tricarinate, these carinæ, the inner edge of the two interocular carinæ, and an oblique lateral fascia on each side of pro- and mesonota yellowish-white; body beneath and legs very pale ochraceous; marginal and central area to face and suffusions near apex of abdomen black or piceous;

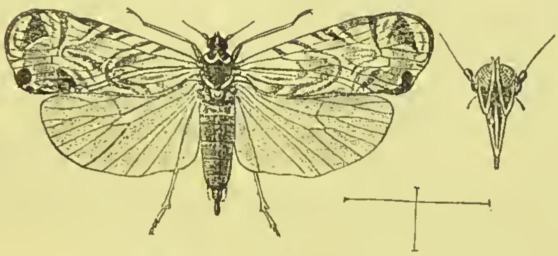

Fig. 124.—*Brixia tortriciformis.*

legs with fuscous lines; tegmina very pale ochraceous, subhyaline, with paler suffusions and fuscous markings as in figure (*supra*), which affords a better description than can be expressed in words; wings very palely infuscate, the veins darkly fuscous; in this species the veins of the tegmina are not setosely maculate.

Length excl. tegm. 4 to $4\frac{1}{2}$; exp. tegm. 12 to 14 millim.

Hab. Ceylon; Nawalapitya, Kandy (*Green*).

1813. **Brixia albomaculata,** sp. n.

Body above dark brown; head, pronotum, and abdominal segmental margins dull ochraceous; body beneath dull ochraceous; the legs and transverse fasciæ to abdomen dark brown, legs linearly streaked with ochraceous; tegmina very pale fuscous-brown with creamy-white markings, of which there are four spots in radial area, a large triangular spot beneath its basal half, a transverse fascia from its apex to inner margin of tegmen, a claval longitudinal streak, a somewhat large irregular patch on apical area (containing a pale fuscous spot), a triangular spot near apex of costal margin, and two transverse spots near apical margin; commencing near apex of inner margin is a longitudinal

waved fuscous spot containing four small pale spots, three of which are pearly-white and one ochraceous, costal and apical margins narrowly (broadly from end of radial area to apex) umber-brown; wings very pale fuliginous, the venation fuscous; pronotum centrally carinate; mesonotum tricarinate; basal ocellus to face very distinct.

Length excl. tegm. 7; exp. tegm. 20 millim.

Hab. Bombay (*Brit. Mus.*).

1814. **Brixia flavomaculata**, sp. n.

Head and thorax above ochraceous; disk of mesonotum and dorsal surface of abdomen castaneous; body beneath and legs ochraceous; tegmina pale tawny-yellow with white and fuscous markings; basal half of radial area white with a subcentral fuscous spot, an oblique spot beneath and before middle of radial area and a claval streak white, a transverse white fascia inwardly margined with fuscous crosses tegmen from end of radial area, and on upper half between this and apex are two short oblique fasciæ, both inwardly margined with fuscous, one directed outward, the other inward, beneath these a few longitudinal greyish-white spots, an apical oblique white fascia inwardly margined with fuscous, and three subapical white spots; near end of inner margin there is a somewhat large oblique fuscous spot containing two small ochraceous spots, followed by a fuscous spot on apical margin; wings palely infuscate, the venation fuscous; pronotum centrally carinate; mesonotum tricarinate.

Length excl. tegm. $5\frac{1}{2}$; exp. tegm. 20 millim.

Hab. Assam; Margherita (*Atkinson Coll.*, *Brit. Mus.*). Khási Hills (*Brit. Mus.*).

Subfamily V. TROPIDUCHINÆ.

Tropiduchida, *Stål, Hem. Afr.* iv, pp. 130 & 186 (1866).
Tropiduchina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 748; *Atkins. J. A. S. Beng.* lv, p. 37 (1886).
Tropiduchidæ, *Melich. Hom. Faun. Ceylon*, p. 11 (1903).

Head more or less narrower than the pronotum; sides of clypeus without a ridge or with only an obtuse ridge; pronotum tricarinate, usually angularly emarginate at base, seldom roundly sinuate; commisural margin of tegmina straight or rounded behind the clavus; costal area sometimes dilated; costal membrane often but not invariably transversely veined, as apparently regarded by Stål.

The principal distinguishing character of this subfamily from the *Achilinæ* is, in my estimation, the non-carinate lateral margins of the clypeus; the basal joint of the posterior tarsi is always more or less elongate.

Synopsis of Genera.

A. Body elliptical, convex; tegmina coriaceous.
  a. Face not longer than broad, convexly ampliated near base .... HIRACIA, p. 273.
  b. Face considerably longer than broad, not convexly ampliated near base .... KARNA, p. 274.
B. Body neither elliptical nor convex; tegmina not coriaceous.
  a. Vertex of head broadly produced in front of eyes and apically rounded; including eyes only a little narrower than pronotum.
    a′. Pronotum posteriorly profoundly emarginate; apical areas of tegmina with transverse veins .... TAMBINIA, p. 276.
    b′. Pronotum not posteriorly profoundly emarginate; apical areas of tegmina without transverse veins.
      *a*². Face longer than broad; posterior tibiæ with two spines .... OSSA, p. 279.
      *b*². Face broader than long; posterior tibiæ with three spines.................... STIBORUS*, p. 280.
  b. Vertex of head (including eyes) considerably narrower than pronotum.
    a′. Tegmina long and narrow, with two series of transverse veins enclosing apical and subapical areas.
      *a*². Tegmina hyaline.
        *a*³. Costal membrane without transverse veins .... LEUSABA, p. 280.
        *b*³. Costal membrane with widely separated transverse veins.............. STACOTA, p. 281.
        *c*³. Costal membrane with numerous oblique veins .... EPORA, p. 282.
      *b*². Tegmina opaque. Costal membrane without transverse veins .... BARUNA, p. 283.
    b′. Tegmina short and broad, irregularly veined. PARUZELIA, p. 284.

Genus HIRACIA.

Hiracia, *Walk. J. Linn. Soc., Zool.* i, p. 154 (1857); *Stål, Hem. Afr.* iv, p. 188 (1866); *Atkins. J. A. S. Beng.* lv, p. 40 (1886).

Type, *H. ignava*, Walk., from Borneo.

Distribution. Oriental and Malayan Regions.

"Body elliptical, convex; head with the borders hardly elevated; vertex conical, with three distinct keels; front and face with three distinct keels, the former obconical, excavated next the face, which is lanceolate; prothorax full twice broader than long, narrower in front, with five keels; mesothorax triangular, acuminated, with three keels; fore wings acuminated, with numerous rugulose veins and transverse veinlets." (*Walker.*)

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* I have not seen this genus, and only know it by Dr. Melichar's description.

I give Walker's description of this genus for two reasons: firstly, because it is evidently on that and Walker's figure that Stål included *Hiracia* in his *Tropiduchina*; and secondly, because the only species recorded from British India is one described and figured by Signoret, which I have not seen, and which may or may not be strictly congeneric.

1815. **Hiracia walkeri**, *Sign. Ann. Soc. Ent. Fr.* 1861, p. 57, t. ii, f. 3, *a*, *b*; *Atkins. J. A. S. Beng.* lv, p. 40 (1886).

"Yellowish-grey with two black patches on the tegmina; head weakly angular in front with a median keel on the face; vertex grooved, with the margins strongly carinated, posterior margin concave; pronotum angular, rounded in front, furnished with a great number of small tubercles along the anterior margin and on its disk, and a median transverse impression; mesonotum weakly tricarinate; tegmina with veins without anastomoses but faintly reticulated in the intervals, a median triangular black spot towards costal margin, and an oblong spot behind towards the internal margin; abdomen yellowish, shorter than the tegmina; legs yellow, very long; posterior tibiæ furnished on the external sides with seven spines, a character which serves to separate this species from *H. ignava*, Walk." (*Signoret.*)

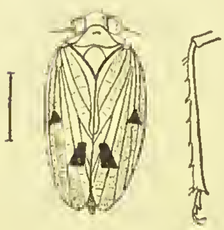

Fig. 125.
Hiracia walkeri.

Length 7 millim.

Hab. "India" (*fide Signoret*).

In his description Signoret refers to his illustration as "fig. 4"; it is, however, correctly lettered on his plate as "fig. 3."

Genus **KARNA**, nov.

Type, *K. karenia*, Dist.

Distribution. Burma.

Head (including eyes) narrower than pronotum; vertex long, horizontal, medially and marginally carinate, its anterior margin rounded; antennæ inserted beneath the eyes, second joint short, robust; face long, tricarinate, the margins also finely carinate, the sublateral carinæ not quite reaching base, which is angularly emarginate before clypeus, its apex rounded, the apical margin strongly carinate; clypeus with a strong medial carination, its lateral margin deflected and simple; rostrum reaching the intermediate coxæ; pronotum almost as long as vertex, strongly medially tricarinate, its posterior margin strongly concavely emarginate, beyond the lateral carinæ obliquely deflected; mesonotum triangular, its disk tricarinate, and between the lateral carinæ, which are rounded and meet anteriorly, the surface is moderately

concave; tegmina coriaceous, on each side roundly oblique, the veins strongly elevated and more or less broadly reticulated by the presence of oblique and transverse cross-veins, especially on apical area, between the veins they are also distinctly punctate; legs moderately long and robust, prominently longitudinally grooved, the anterior and intermediate tibiæ ampliated and centrally carinate; posterior tibiæ with two strong teeth at base; posterior tarsi with the basal joint moderately long and robust; posterior femora with a short strong apical spine.

This genus is allied to *Hiracia*, from which it differs by having the face considerably longer than broad and not convexly ampliated posteriorly, the vertex much longer than broad, &c. It also possesses affinities with the Mexican genus *Grynia*, Stål.

1816. **Karna karenia**, sp. n.

Body pale testaceous, with darker speckles and punctures; tegmina with two obliquely transverse piceous lines, the first near middle, the other on apical area, and possessing two longitudinal branches running posteriorly, one on disk, the other near costal margin; anterior area of face, clypeus, and prosternum (excluding lateral margins) more or less piceous; abdomen beneath finely

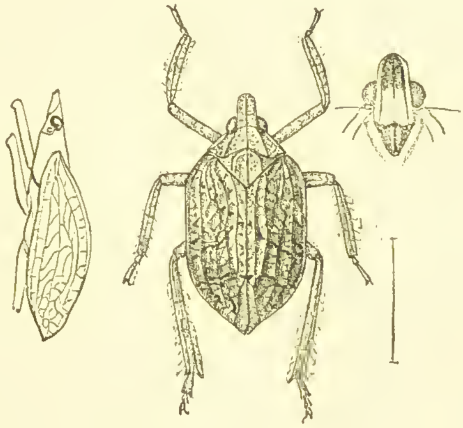

Fig. 126.—*Karna karenia.*

mottled with piceous; legs brownish-ochraceous with pale mottlings, apices of tarsi piceous; apices of the tegmina subacute, their lateral margins distinctly sinuate near middle; legs more or less strongly pilose; posterior tibiæ with two strong teeth at base, and posterior femora with a strong apical spine (not shown in figure).

Length 14 millim.

Hab. Burma; Karen Hills (*Doherty*).

Genus TAMBINIA.

Tambinia, *Stål, Berl. ent. Zeitschr.* iii, p. 316 (1859).

Type, *T. languida*, Stål.

Distribution. Oriental and Malayan Regions.

Body short; head a little narrower than the pronotum, the vertex produced and apically rounded, its margins reflexed, and with a central longitudinal carination; face very strongly reclinated, nearly horizontal, between and behind eyes with the margins subparallel, before eyes subangulate, base rounded, beneath for more than half of length medially more or less distinctly carinate; clypeus triangular, convex, its margins not carinate; ocelli obsoletely situate between the eyes; antennæ short; pronotum a little anteriorly produced, posteriorly profoundly emarginate, tricarinate, the lateral carinæ oblique; mesonotum tricarinate, the lateral carinæ converging anteriorly, the central carina abbreviated posteriorly; legs of moderate length, posterior tibiæ bispinose; tegmina about one-third longer than the body, subparallel, their apices rounded, four longitudinal veins extending for about two-thirds from base, the first very near costal margin, fourth beyond middle furcate, at about one-third from base obliquely divided from seven short longitudinal veins, constituting short cellular areas divided by transverse veins from longer and more numerous apical areas in which many of the veins are furcate.

The exact location of this genus is differently regarded. Melichar (Hom. Faun. Ceylon) places it in the *Cixiinæ*, but Stål, its founder, clearly by implication (Öfv. Vet-Ak. Förh. 1870, p. 750), refers it to the *Tropiduchinæ*, where I leave it.

A. *Head rounded, but not prominently narrowed anteriorly.*

a. *Vertex of head longer than space between eyes.*

α. *Face about twice as long as broad, the central carination evanescent posteriorly.*

1817. **Tambinia languida**, *Stål, Berl. ent. Zeitschr.* iii, p. 317 (1859); *Melich. Hom. Faun. Ceylon,* p. 39 (1903).

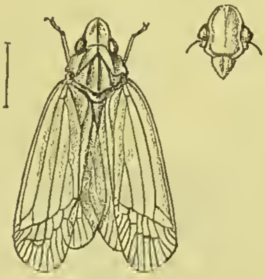

Fig. 127.
Tambinia languida.

Pale virescent, the mesonotum sometimes tinted with ochraceous; basal two-thirds of tegmina semi-opaque, apical third semihyaline, paler in hue, the venation virescent; wings pale semihyaline, the venation virescent; body beneath more or less tinted with ochraceous; legs virescent; apices of spines to posterior tibiæ fuscous; vertex of head a little longer than space between eyes; face almost twice longer than broad, the central longitudinal carination becoming evanescent posteriorly; base of pronotum acutely angularly emarginate.

Length incl. tegm. 7 to 8 millim.

Hab. Ceylon (*Green, Brit. Mus.*).

1818. **Tambinia inconspicua**, sp. n.

Body and legs ochraceous, apical half of abdomen moderately infuscate; tegmina of a very pale tawny hue, the venation pale fuscous; wings pale hyaline; vertex of head longer than space between eyes, the central and lateral carinations very prominent; carinations to both pro- and mesonota well pronounced; posterior

Fig. 128.—*Tambinia inconspicua.*

tibiæ armed with two spines; face about twice as long as broad, its central carination becoming evanescent towards base.

Length excl. tegm. $4\frac{1}{2}$; exp. tegm. 13 millim.

Hab. Burma (*Stockholm Mus.*).

Dr. Aurivillius kindly forwarded me this unnamed species for description. It is allied to *T. languida*, Stål, from which it is to be distinguished by the shape and structure of the head as shown in the figures of the two species.

aa. *Vertex of head about as long as broad.*

a'. *Face a little longer than broad, carination to face percurrent.*

1819. **Tambinia debilis**, *Stål, Berl. ent. Zeitschr.* iii, p. 317 (1859); *Melich. Hom. Faun. Ceylon*, p. 39, t. i, f. 13, *a* (1903).

Pale virescent; mesonotum frequently tinted with ochraceous; tegmina semihyaline, virescent on claval areas; body beneath and legs virescent, more or less tinted with ochraceous; apices of spines to the posterior tibiæ fuscous; vertex of head about as long as breadth between eyes; face about one-third longer than broad, the central carina extending throughout its entire length; pronotum moderately angularly emarginate at base.

Length incl. tegm. 6 to 7 millim.

Hab. Ceylon (*Green, Brit. Mus.*).

1820. **Tambinia maculosa**, sp. n.

Pale virescent; tegmina with the venation darker green, the claval area very pale brownish, the apical area a little paler in hue and more or less marginally suffused with very pale brown, the most prominent spots being one on costal margin at about one-fourth from apex, and one farther from apex and nearer inner

margin; wings pale creamy-hyaline; head above about as long as broad, moderately narrowing anteriorly, with a central longitudinal carination; face longer than broad, central carination percurrent; apices of spines to posterior tibiæ slightly fuscous.

Length $5\frac{1}{2}$; exp. tegm. 11 millim.

Hab. "India" (*Brit. Mus.*).

a[2]. *Face about twice as long as broad, carination percurrent.*

1821. **Tambinia rufoornata,** *Stål, Berl. ent. Zeitschr.* iii, p. 317 (1859); *Melich. Hom. Faun. Ceylon,* p. 39 (1903).

Pale virescent, apical areas of tegmina hyaline; a suffusion on each side of head before eyes, the posterior margin of pronotum, carinæ to mesonotum, and commissural margins of tegmina more or less rufous-red; a subbasal spot to tegmina near clavus and the oblique division on tegmina between corium and membrane very pale fuscous; vertex of head scarcely longer than broad; face nearly twice as long as broad, the central carination percurrent throughout its entire length; apices of spines to posterior coxæ fuscous.

Length incl. tegm. 7 millim.

Hab. Ceylon; Maskeliya (*Green*).

a[3]. *Face about as long as broad, its central carination obsolete.*

1822. **Tambinia atrosignata,** sp. n.

Pale virescent, the apical areas of tegmina hyaline; two black elongate spots near bases of sutural margins of tegmina; oblique division between corium and membrane marked with several fuscous spots; body beneath and legs more ochraceous and less virescent; head with the vertex about as broad as long; face about as broad as long, scarcely perceptibly longitudinally carinate; pronotum with its lateral angles prominent, its posterior margin moderately angularly emarginate.

Length incl. tegm. 6 millim.

Hab. Ceylon; Peradeniya (*Green*).

B. *Head gradually narrowed to apex.*

1823. **Tambinia capitata,** sp. n.

Head and thorax above virescent; body beneath and legs yellowish-green; tegmina with their basal two-thirds very pale yellowish-green and semi-opaque, their apical thirds hyaline; vertex of head a little longer than broad, gradually and moderately narrowed to apex; face nearly twice as long as broad, the central carination continued throughout its entire length, concavely narrowed beyond middle; pronotum posteriorly acutely angularly emarginate.

Length incl. tegm. 6 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus OSSA.

Ossa, *Motsch. Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 106 (1863); *Melich. Hom. Faun. Ceylon*, p. 49 (1903).

Type, *O. dimidiata*, Motsch.

Distribution. Ceylon.

"Horizontal and enlarged form of *Cixius*, but the anterior halves of the tegmina of a cartilaginous consistence, shining, not transparent; head horizontal, depressed, about four distinct superficies, vertex produced as an obtuse cone and margined; face very horizontal, very depressed, elliptical, the margins prominent and with a medial longitudinal carination; ocelli absent; rostrum robust; antennæ inserted laterally under the eyes; posterior margin of head truncate at about middle of eyes and hidden in a kind of forked hood, which is produced laterally just beyond the middle of the pronotum, having the posterior angles dilated and reflected; thorax much larger than head, triangular, tricarinate; scutellum very small, triangular; tegmina ampliated at about middle, their apices rounded, veins on the anterior cartilaginous area strongly elevated, the cellular areas very long, nearly concave, veins on the posterior transparent area less elevated, all longitudinal; body beneath elongately oval; legs not longer than the tegmina, posterior tibiæ armed with two spines." (*Motschoulsky.*)

1824. **Ossa dimidiata**, *Motsch. Bull. Soc. Nat. Mosc.* xxxvi, 3, p. 107, t. xi, f. 23 (1863); *Melich. Hom. Faun. Ceylon*, p. 49, t. ii, f. 10, *a* (1903).

"Elongate, dilate, tectiform, depressed, shining, green; head and sutures of the thorax subochraceous; tegmina posteriorly hyaline, triangular, infuscate, apex paler; face, eyes, body beneath, and legs slightly white; head triangularly arcuated, depressed, longitudinally tricarinate, posteriorly between eyes straightly truncate, covered with furcate hood, laterally at base of tegmina much prolonged, hood medially widely tricarinate; pronotum broader than head, triangular, posteriorly arcuated, medially tricarinate, the carinæ anteriorly arcuately united; mesonotum minute, triangular; tegmina towards middle distinctly ampliated, posteriorly subparallel, subhyaline, anteriorly coriaceous, shining, with the veins elevated, the suture canaliculate, longitudinally tricarinate." (*Motschoulsky.*)

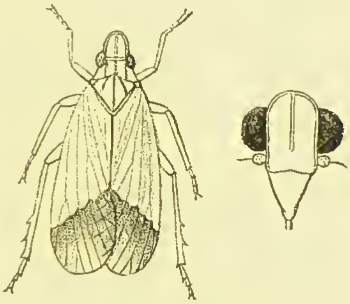

Fig. 129.—*Ossa dimidiata.*

Length "$2\frac{3}{4}$ lin."

Hab. Ceylon; Patannas Mount (*fide Motsch.*).

I have not seen this species but have reproduced the original description of Motschoulsky, and the figure as given by Melichar.

Genus STIBORUS.

Stiborus, *Melich. Hom. Faun. Ceylon*, p. 50 (1903).

Type, *S. viridis*, Melich.
Distribution. Ceylon.
Very much resembling *Ossa*, but with the face broader than long, whereas in *Ossa* the face is longer than broad; posterior tibiæ with three spines.

As Dr. Melichar has not figured the type of this genus, and as I have unfortunately been unable to see a specimen, I have thought it best to give only his differential characters from the allied genus *Ossa*.

1825. **Stiborus viridis**, *Melich. Hom. Faun. Ceylon*, p. 50 (1903).

Green, face with three black spots, situate one on each anterior angle, and one at the upper frontal border of the upper end of the middle ridge; tegmina hyaline with green veins; abdomen and legs green; apices of claws and spines brown.

Length, ♂ & ♀, 7 millim.

Hab. Ceylon; Peradeniya (*fide Melichar*).

My only knowledge of this species is from the short description given by Dr. Melichar.

Genus LEUSABA.

Leusaba, *Walk. J. Linn. Soc., Zool.* i, p. 144 (1857); *Stål, Hem. Afr.* iv. p. 188 (1866); *Melich. Hom. Faun. Ceylon*, p. 28 (1903).

Type, *L. marginalis*, Walk., from Borneo.
Distribution. Oriental and Malayan Regions.

Head narrower than pronotum, vertex subquadrate with its margins carinate and the disk moderately concave; face ampliated posteriorly, centrally and marginally ridged, its anterior margin slightly rounded, its basal margin subtruncate; clypeus centrally ridged, its lateral margins simple; pronotum slightly longer than vertex, its anterior margin roundly produced, its posterior margin angularly emarginate, with four longitudinal carinæ, the two central contiguous, and one oblique on each lateral area; mesonotum tricarinate, the lateral carinæ converging anteriorly; legs rather long and slender, especially the posterior ones, of which the tibiæ have two long spines on their apical halves; posterior tibiæ with the basal joint moderately long; tegmina apically broadened, of the three basal longitudinal veins the lowermost is alone forked, two slightly oblique series of transverse veins dividing six subapical areas and a series of many apical areas, some of the longitudinal veins to the latter bifurcating towards their apices; wings short and somewhat narrow.

Melichar, from the absence of transverse veins to the costal membrane, regards this genus as belonging to the *Dictyopharinæ*; but this is not an exclusive character to the *Tropiduchinæ*, and it appears evident, as Stål opined, that *Leusaba* belongs to the latter subfamily.

1826. **Leusaba rufitarsis,** *Kirby* (Stacota), *J. Linn. Soc., Zool.* xxiv, p. 134 (1891).
Leusaba marginalis, *Melich.* (*nec Walk.*) *Hom. Faun. Ceylon*, p. 29, t. i, f. 10, *a, b* (1903).

Body and legs somewhat dark virescent; a transverse fascia to vertex of head, anterior and lateral margins and central ridge to face, two central ridges to pronotum, ridges to mesonotum, and sometimes the apices of the spines to posterior tibiæ sanguineous-

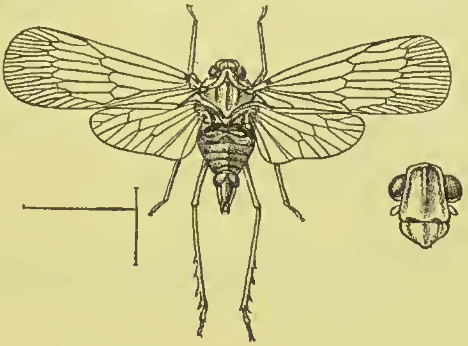

Fig. 130.—*Leusaba rufitarsis.*

red; a black spot on anterior coxæ, and legs more or less streaked with black; tegmina and wings hyaline, the venation piceous; tegmina with the extreme base dull virescent with two black spots.

Length excl. tegm. 9; exp. tegm. 26 millim.

Hab. Ceylon; Kandy, Pundaluoya (*Green*).

Melichar (*supra*) has regarded this species as syuonymous with the Bornean *L. marginalis*, Walk., but the relative lengths of the apical and subapical areas to the tegmina will readily divide the two species.

Genus **STACOTA.**

Stacota, *Stål, Berl. ent. Zeitschr.* iii, p. 324 (1859); *Melich. Annal. k.-k. naturh. Hofmus.* p. 325 (1898).

Type, *S. breviceps*, Walk.

Distribution. Ceylon.

Head narrower than prouotum; vertex longer than broad, its anterior and lateral margins aud a central longitudinal line carinate; face longer than broad, obliquely narrowed before middle towards clypeus, centrally and laterally carinate; clypeus centrally carinate, its lateral margins simple; pronotum shorter than vertex, anteriorly somewhat conically produced, posteriorly subangularly emarginate, tricarinate, the lateral carinæ oblique; mesonotum tricarinate, the lateral carinæ anteriorly converging; legs rather long, posterior tibiæ with two spines; tegmina ampliated towards apex, costal membrane with somewhat widely separated transverse

veins, of the three basal longitudinal veins the lower only forked, two series of transverse veins dividing eight subapical and many apical areas, one of the longitudinal veins to the latter bifurcate towards apex; wings short and somewhat narrow.

In his description of the type of this genus, Walker states that the vertex is "more than twice broader than long," but this is entirely incorrect.

Both Stål and Melichar have placed *Stacota* in the *Ricaniinæ*, a course not followed here, by reason of the structure of the head.

1827. **Stacota breviceps**, *Walk.* (Dictyophora) *List Hom. Suppl.* p. 68 (1858); *Stål* (Stacota), *Öfv. Vet.-Ak. Förh.* 1862, p. 487; *Kirby*, *J. Linn. Soc., Zool.* xxiv, p. 134 (1891); *Melich. Annal. k.-k. naturh. Hofmus.* p. 326, t. xiv, f. 16, *a*, *b* (1898); *id. Hom. Faun. Ceylon*, p. 86 (1903).
Stacota comptella, *Stål, Berl. ent. Zeitschr.* iii, p. 325 (1859); *Kirby*, *J. Linn. Soc., Zool.* xxiv, p. 134 (1891).

Body and legs virescent in fresh specimens, ochraceous in older and discoloured examples; anterior and lateral margins and central carination to vertex, central and lateral carinæ to face, central carination to clypeus, and the mesonotal carinæ more or less red;

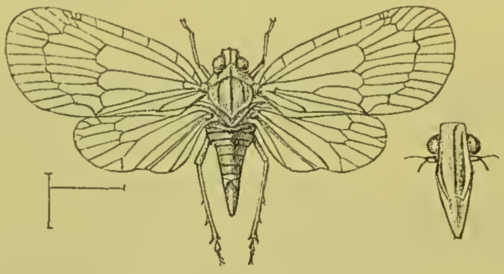

Fig. 131.—*Stacota breviceps.*

abdomen above with a central maculate fascia and extreme segmental margins red; tegmina and wings hyaline, the venation ochraceous; tegmina with the venation somewhat thickly covered with minute setose darker spots, which in some specimens, as the one here figured, are scarcely visible.

Length excl. tegm. 6; exp. tegm. 18 millim.

Hab. Ceylon; Peradeniya, Kandy, Pundaluoya, Henaratgoda (*Green*).

Genus **EPORA**.

Epora, *Walk. J. Linn. Soc., Zool.* i, p. 145 (1857); *Stål, Hem. Afr.* iv, p. 188 (1866); *Melich. Hom. Faun. Ceylon*, p. 48 (1903).

Type, *E. subtilis*, Walk.

Distribution. Oriental and Malayan Regions.

Head narrower than pronotum; vertex considerably shorter than broad, its lateral and anterior margins ridged; face longer than

broad, laterally and centrally ridged, its lateral areas slightly obliquely narrowed immediately before clypeus, which is strongly centrally ridged; pronotum very narrow, its lateral areas strongly oblique, deeply angularly emarginate posteriorly, all its margins carinate and with two contiguous central carinations; mesonotum tricarinate; legs moderately long and slender, posterior tibiæ with three spines; tegmina a little ampliated apically, the costal membrane with numerous obliquely transverse veins, two series of transverse veins considerably beyond middle, dividing numerous subapical and apical areas; wings short and somewhat narrow.

1828. **Epora subtilis,** *Walk. J. Linn. Soc., Zool.* i, p. 146, t. vii, f. 3 (1857).

Body and legs virescent; tarsal claws piceous; tegmina very pale virescent subhyaline; wings hyaline; eyes pale castaneous-brown; in some specimens the legs are distinctly paler than the body.

Length excl. tegm. $5\frac{1}{2}$; exp. tegm. 17 millim.

Hab. Ceylon; Bogawantalawa (*Green*).

Fig. 132.—*Epora subtilis.*

Melichar (Hom. Faun. Ceylon, t. i, f. 11) has figured a species as *Epora subtilis*, which if compared with Walker's figure will at once prove that two species have been confused with scarcely any characters in common; in fact it is doubtful if they are congeneric. In Melichar's figure the transverse veins to the costal membrane of the tegmina are straight, there is no regular division of the subapical and apical areas, the shape of the pronotum is totally different, and so apparently is that of the head.

Genus BARUNA, nov.

Type, *B. albosignata*, Dist.

Distribution. Ceylon.

Head narrower than pronotum; vertex a little broader than long, its margins carinate, its disk concave, with a slight central, longitudinal ridge; face long, its lateral areas moderately oblique, centrally and laterally strongly carinate; clypeus centrally carinate, its lateral margins simple; pronotum scarcely longer than vertex, tricarinate, its posterior margin concavely angularly emarginate; mesonotum tricarinate; legs moderately long and slender, posterior tibiæ with about three spines; tegmina long and narrow, their apices somewhat conically rounded, costal membrane without transverse veins, of the three basal longitudinal veins the upper and lower forked, two series of transverse veins, the first nearly

straight, the outermost convex, dividing the apical and ulnar areas, the former distributed around the apical marginal area; wings short and narrow.

1829. **Baruna albosignata**, sp. n.

Body above and face pale greyish-flavescent; central carination to vertex, carinations to face, central carination to clypeus, central carination to pronotum and a longitudinal fascia on each lateral area to same, central carination to mesonotum and a spot or fascia on each lateral area to same, a central macular fascia and a broad

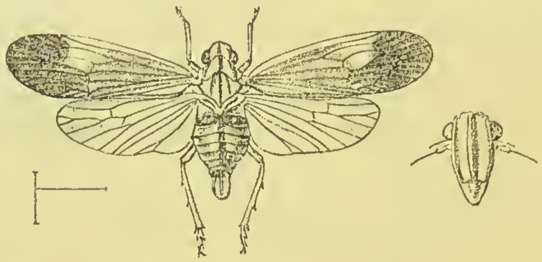

Fig. 133.—*Baruna albosignata.*

lateral fascia on each side of abdomen purplish-red; body beneath more or less suffused with piceous; legs piceous, apices of femora and bases of tarsi pale flavescent; tegmina fuscous, the apical area piceous, costal membrane slightly paler, and a large pale greyish spot beneath apex of radial area, claval area greyish; wings hyaline, the venation pale fuscous.

Length excl. tegm. $4\frac{1}{2}$; exp. tegm. $14\frac{1}{2}$ millim.

Hab. Ceylon; Tangalla (*Green*).

Genus **PARUZELIA**.

Paruzelia, *Melich. Hom. Faun. Ceylon*, p. 51 (1903).

Type, *P. psyllomorpha*, Melich.

Distribution. Ceylon.

Head (including eyes) narrower than pronotum; vertex projecting beyond the eyes, flat, straight, on its anterior area medially finely ridged; face strongly curved downward, twice as long as broad, narrowed above, widened towards clypeus, with a fine central ridge extending to middle, lateral margins carinate; clypeus broad, shortly triangular, not ridged; rostrum short, extending to middle coxæ; antennæ inserted just beneath eyes, very short, second joint shortly oval; ocelli present, very small but distinct near lower margins of eyes; pronotum with posterior margin obtusely deeply angularly emarginate; mesonotum almost broader than long, slightly flattened on disk and tricarinate, the lateral carinations beyond middle concavely bent inwardly and united with apex of central ridge; tegmina peculiarly resembling the form in *Psyllidæ*, shortly oval, hyaline, apical margin concave between the apical veins, so that it appears strangely angular; clavus short and broad;

of the three basal longitudinal veins the third is forked, and they are connected by several transvere veins which constitute irregularly formed cellular areas; wings hyaline, broad, short; legs simple, posterior tibiæ with two spines.

I include this genus in the *Tropiduchinæ* on Melichar's authority, and have given what I hope are the salient points in his description.

1830. **Paruzelia psyllomorpha**, *Melich. Hom. Faun. Ceylon*, p. 51, t. iii, f. 2, *a–c* (1903).

"Body yellowish-brown, vertex yellowish-white in middle with a fine longitudinal line which forms a short fork; face with the sides yellowish, the marginal ridges more or less dark yellow, and with an oblique reddish-brown transverse streak, upper half dirty yellow set with fine diverging yellow hairs; clypeus resembling face; eyes brown; antennæ yellowish; pronotum with several indistinct rusty-yellow spots, which give a marbled appearance to its surface; mesonotum brown, the longitudinal ridges paler, a large brown spot on side borders, a paler marginal spot before apex; tegmina hyaline, the veins brown and decorated with brown spots, which coalesce but are here and there separated by red veins; wings hyaline, with a broad transverse band at middle; thorax and abdomen piceous; legs pale yellowish; posterior tibiæ with a dark annulation before middle.

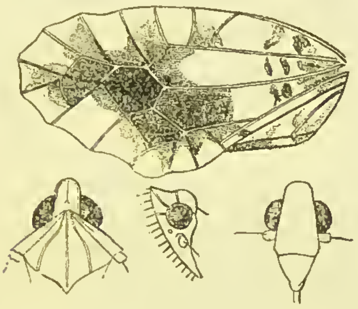

Fig. 134.
Paruzelia psyllomorpha.

"Length, ♂, $5\frac{1}{2}$; expanse 8 millim." (*Melichar.*)

Hab. Ceylon; Henaratgoda (*fide Melichar*).

I have reproduced Melichar's description and figures.

The following species must be included in the *Tropiduchinæ*, but its generic position cannot be stated with any certitude, as I am unable to see any of Dr. Melichar's cotypes.

1831. Gen.? **melichari**, sp. n.

Epora subtilitis, *Melich.* (*nec Walk.*) *Hom. Faun. Ceylon*, p. 48, t. i, f. 11, *a–e* (1903).

I have already pointed out (*ante*, p. 283) the confusion which attaches to this species, but I refrain from reproducing the figure, as its generic position can only with accuracy be determined by the examination of a specimen. As Dr. Melichar has given both Ceylon and Bombay as its habitats, it is more than probable that an example at least will be procured from India or Ceylon in time for insertion in an appendix to these volumes.

Subfamily VI. ACHILINÆ.

Achilida, *Stål, Hem. Afr.* iv, pp. 130 & 181 (1866).
Achilina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 478; *Atkins. J. A. S. Beng.* lv, p. 36 (1886).
Achilidæ, *Melich. Hom. Faun. Ceylon*, p. 11 (1903).

Head narrower than the pronotum; lateral margins of the clypeus carinate; apical joint of rostrum elongate; pronotum angularly emarginate at base; tegmina ampliated behind the clavus, which is very rarely granulate, acute at apex, which is distinctly closed, claval vein continued to the apex or united with the claval suture near apex; posterior tarsi with the basal joint elongate.

This subfamily is closely allied to the *Tropiduchinæ*, from which it can always be distinguished by the carinate lateral margins of the clypeus.

Synopsis of Genera.

A. Face prominently produced before eyes.
- a. Clypeus small, less than half the length of face. FAVENTIA, p. 286.
- b. Clypeus about as long as face .... VEKUNTA, p. 287.

B. Face not, or very slightly, projecting before eyes.
- a. Clypeus about, or nearly, as long as face.
  - *a'*. Face anteriorly emarginate .... KINNARA, p. 289.
  - *b'*. Face anteriorly convex or truncate, not emarginate.
    - *a²*. Face only about half as broad as long, anteriorly truncate .... MAGADHA, p. 290.
    - *b²*. Face nearly three-fourths as broad as long, anteriorly rounded .... TANGINA, p. 291.
- b. Clypeus only about half as long as face; posterior tibiæ with two short spines; tegminal stigma undeveloped .... KOSALYA, p. 292.
- c. Clypeus more than half as long as face; posterior tibiæ with a single small spine; tegminal stigma very strongly developed ...... USANA, p. 293.

Genus FAVENTIA.

Faventia, *Stål, Hem. Afr* iv, p. 181 (1866); *id. Öfv. Vet.-Ak. Förh.* 1870, p. 748.

Type, *F. pustulata*, Walk.

Distribution. Oriental and Malayan Regions.

Head narrower than the pronotum; vertex short, subquadrangular, centrally ridged and laterally carinate, the spaces between the carinations foveate; face long, prominently produced in front of eyes, a little ampliate posteriorly, centrally strongly ridged, the lateral margins carinate; clypeus small, less than half the length of face, with its lateral margins distinctly carinate and centrally

finely ridged; pronotum narrow, its base strongly, deeply emarginate, tricarinate, the lateral carinæ curved inwardly and meeting anteriorly; mesonotum finely tricarinate; legs moderately long and slender, posterior tibiæ with a single spine; tegmina moderately ampliate at apical areas and inwardly ampliate behind the clavus, radial vein and the lower longitudinal vein furcate, two series of transverse veins, the first about three in number, situate beyond middle and connecting the longitudinal veins, the second series more numerous and convexly continuous before apical margin; wings broader than tegmina.

1832. **Faventia pustulata**, *Walk.* (Cixius) *J. Linn. Soc., Zool.* i, p. 87 (1856); *Stål* (Faventia), *Berl. ent. Zeitschr.* x, p. 392 (1866).

Body and legs umber-brown; foveations to vertex and two small spots at base of mesonotum black; tegmina dull greyish, the apical areas darker, the venation very pale ochraceous, excluding apical

Fig. 135.—*Faventia pustulata.*

marginal areas sprinkled with small fuscous spots, with a few larger piceous spots, of which the most prominent are one at apex of claval area, one on disk before middle, and another at base; wings fuliginous, the venation fuscous, and with a small distinct discal greyish spot; there is also a prominent black spot on each side of the prosternum; the central and lateral ridges of the face are piceous-brown and its anterior margin truncate.

Length excl. tegm. 8; exp. tegm. 22 millim.

Hab. Tenasserim; Myitta (*Doherty*).—Singapore (*Brit. Mus.*).

Genus **VEKUNTA**, n. nom.

Temesa, *Melich. Hom. Faun. Ceylon*, p. 40 (1903), nom. præocc. (Moll.).

Type, *V. tenella*, Melich.

Distribution. Ceylon.

Head with eyes narrower than pronotum; face quadrangular, flattened at the sides, scarcely keeled, straightly projecting a little in front of eyes, the anterior margin divided from the vertex by

a sharp transverse ridge and narrower than at base; vertex somewhat long, narrowed anteriorly and concavely excavate between the prominent outer margins; clypeus triangular, ridged medially and laterally, the central ridge slight; eyes semicircular; antennæ very short, second joint thickened and shortly oval; ocelli absent; pronotum very narrow, posteriorly very strongly emarginate; mesonotum as long as broad, scarcely keeled; tegmina narrow, base of costal margin curved inward, two longitudinal veins in corium, outer one forked near base and the second before middle, outer branch united with first longitudinal vein by a transverse vein, several transverse veins in apical area, outer forked branch in clavus granulated at base; wings as long as tegmina; posterior tibiæ unarmed.

1833. **Vekunta tenella,** *Melich.* (Temesa) *Hom. Faun. Ceylon*, p. 41, t. iii, f. 11, *a, b, c* (1903).

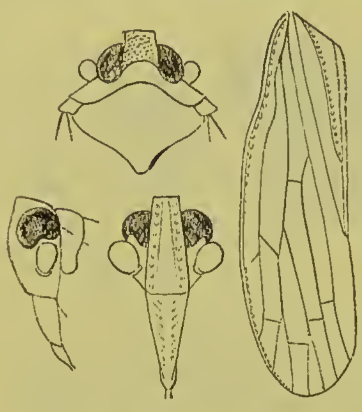

Fig. 136.—*Vekunta tenella.*

"Head, pronotum, and antennæ pale yellow; mesonotum orange-yellow; eyes black; face rather darker; vertex thickly covered with yellow warts; tegmina hyaline, dirty brownish-yellow, apical area smoky-brown, costal margin rather paler and set with extremely fine granules; wings slightly fuliginous with dark veins; abdomen and legs orange-yellow, the latter paler." (*Melichar.*)

Length, ♂, $5\frac{1}{2}$ millim.

Hab. Ceylon; Peradeniya (*fide Melichar*).

I only know this genus and species by Melichar's figures and descriptions; I have reproduced the first and endeavoured to give the salient points of the latter.

1834. **Vekunta punctula,** *Melich.* (Temesa) *Hom. Faun. Ceylon*, p. 41 (1903).

"Similar to *T. tenella*, and only distinguished by the neck of the vertex having a deep triangle in which the flattened warts are absent; on each side of the outer areas of the prosternum is a large black spot, which is wanting in *T. tenella*; other characters as in that species." (*Melichar.*)

Length $5\frac{1}{2}$ millim.

Hab. Ceylon, Negombo (*fide Melichar*).

I have no personal knowledge of this species.

Genus **KINNARA**, n. nom.

Pleroma, *Melich. Hom. Faun. Ceylon*, p. 41 (1903), nom. præocc. (Spong. et Ins.).

Type, *K. ceylonica*, Melich.
Distribution. Ceylon.

Head short, much narrower than pronotum, the anterior margins of face slightly projecting beyond eyes and giving the appearance of lateral angulations to vertex, which is concave with its margins carinate; eyes with their posterior margins concavely emarginate; face narrowest between eyes, anteriorly emarginate, ampliated towards middle, and then a little narrowed to clypeus, centrally practically non-carinate; clypeus nearly as long as face, centrally and laterally carinate; pronotum narrow; mesonotum moderately convex and very obsoletely tricarinate; legs of moderate length, posterior tibiæ not spined; tegmina somewhat narrow, their apical margins rounded, a small distinct indentation on costal margin beyond middle, beneath which there is an apparently sac-like area, lower longitudinal vein furcate, a series of transverse veins before apical area, and two transverse discal veins just beyond middle, apical areas numerous, about ten in number; wings a little wider than tegmina.

1835. **Kinnara ceylonica**, *Melich.* (Pleroma) *Hom. Faun. Ceylon*, p. 42, t. i, f. 12, *a*, *b*, *c* (1903).

Head, thorax above, body beneath, and legs flavescent; mesonotum more rufous in hue; eyes and apex of abdomen black; tegmina pale flavescent, more or less greyish on apical half, a small cretaceous spot at the costal indentation; wings very pale fuliginous, with the venation fuscous; in some specimens there are short, ray-like, very obscure pale fuscous spots in the apical areas to the tegmina, but these are not of a constant character.

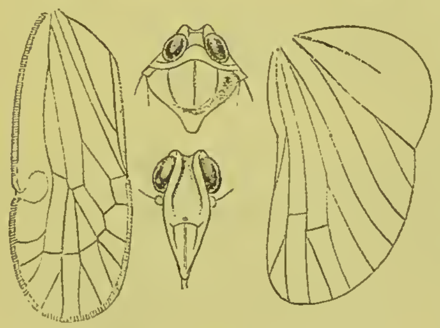

Fig. 137.—*Kinnara ceylonica*.

Length excl. tegm. 3 to $3\frac{1}{2}$; exp. tegm. 10 to $10\frac{1}{2}$ millim.
Hab. Ceylon; Peradeniya (*Green*).

I have reproduced Melichar's figure in order that the structural characters of his genus may be more readily understood.

1836. **Kinnara fumata**, *Melich.* (Pleroma) *Hom. Faun. Ceylon*, p. 42 (1903).

"Above and beneath smoky-brown; head small; vertex very short, margins leaf-like, raised, and passing off into the raised

margins of the face; ocelli at the clypeal suture, large, glassy, distinct; face not ridged; clypeus with a very prominent central ridge; eyes black; antennæ small, placed close to lower margins of eyes; ocelli elose to anterior margins of eyes; pronotum extremely narrow, ribbon-shaped; mesonotum large, convex, flattened off at tip, with three strong parallel longitudinal ridges; tegmina somewhat long, rounded off behind, fuliginous, with a slight bronzy lustre, a small white spot on costa at the extremely slight indentation; venation piecous; wings fuliginous; underside and legs dull brown.

"Length 5 millim." (*Melichar.*)

Hab. Bombay District; Matheran Mt. (*fide Melichar*).

I have not seen this species.

1837. **Kinnara albiplaga**, sp. n.

Head, thorax above, body beneath, and legs flavescent, the mesonotum somewhat rufous; abdomen more or less infuscate; tegmina pale fuscous-brown, the venation darker, a large basal patch neither reaching radial vein nor posterior margin and almost reaching middle of tegmen, a small subtriangular spot at costal indentation, and some small discal spots on apical area greyish-white; wings milky-white, the venation a little darker; eyes black; antennæ rufous; structure as in *K. ceylonica*.

Length excl. tegm. 3; exp. tegm. 10 millim.

Hab. Ceylon; Maskeliya (*Green*).

Genus **MAGADHA**, nov.

Type, *M. flavisigna*, Walk.

Distribution. Oriental Region.

Head narrower than the pronotum; vertex truncate anteriorly, concavely sinuate posteriorly, with the lateral margins strongly ridged, the disk foveate, containing a central ridge which does not reach more than halfway from base; face long, about twice as long as broad, a little ampliated posteriorly, the lateral margins acutely laminately ridged and upwardly reflexed, and with a strong central longitudinal ridge; clypeus about as long as face, with the lateral margins laminately ridged and with a strong central longitudinal ridge; last joint of the rostrum elongate; pronotum somewhat conically produced anteriorly, angularly emarginate posteriorly, tricarinate, the lateral carinæ oblique; mesonotum tricarinate; legs of moderate length, first joint of posterior tarsi elongate; tegmina long, somewhat narrow, their apices rounded and deflected at apical area, ampliated inwardly behind the clavus, basal two-thirds of venation longitudinal, closed by a few transverse veins, crossed, a little before apex, by a regular series of transverse veins; wings broader than tegmina.

1838. **Magadha flavisigna,** *Walk.* (Cixius) *List Hom.* ii, p. 348 (1851).

Head and thorax above ochraceous; a large subquadrate discal spot to mesonotum dark castaneous, this spot is more obscurely extended on each side beyond the lateral carinæ; abdomen above

Fig, 138.—*Magadha flavisigna.*

and beneath castaneous; sternum and legs ochraceous, face and sternum suffused and legs annulated with brownish; tegmina dull creamy, semi-opaque, much mottled and spotted with pale fuscous-brown, the veins mostly minutely spotted with fuscous, those on apical area stramineous and very distinct; wings pale fuliginous.

Length excl. tegm. 5½; exp. tegm. 18 millim.

Hab. "North India" (*Brit. Mus.*).

My knowledge of this species is confined to the unique type.

1839. **Magadha nebulosa,** sp. n.

Body above and beneath piceous; legs brownish, apices of femora and extreme bases of tibiæ ochraceous; tegmina fuliginous, opaque, with somewhat large fuscous spots on costal, apical, and basal inner marginal areas, darkest to about two-thirds from base, where the whole surface is minutely speckled with ochraceous, the apical third a little paler, and the apical marginal veins pale creamy-white and very distinct, the whole of the remaining venation thickly speckled with minute pale ochraceous spots; wings very pale fuliginous with the veins fuscous, and in some lights exhibiting an opaline lustre; face finely speckled with ochraceous; clypeus much suffused with ochraceous; anterior femora with a subapical ochraceous annulation.

Length excl. tegm. 4; exp. tegm. 15 millim.

Hab. Ceylon; Maskeliya (*Green*).

Genus TANGINA.

Tangina, *Melich. Hom. Faun. Ceylon,* p. 44 (1903).

Type, *T. bipunctata*, Melich.

Distribution. Ceylon.

"Head (including eyes) only slightly narrower than pronotum, vertex as long as broad, very slightly narrowed anteriorly, rounded off at front margin, its sides ridged; face one and a half times as

long as broad at tip, almost quadrangular, very little narrowed towards vertex, directed downward, horizontal, finely keeled at sides and middle; clypeus triangular, keeled at sides and middle; antennæ placed beneath eyes, second joint almost globular; pronotum half as long as face, tricarinate, lateral keels curved outward, its disk flattened; mesonotum about four times as long as pronotum, tricarinate; tegmina long, parallel at sides, posteriorly ampliate and rounded, three longitudinal veins in corium, the innermost forked near middle, two transverse veins near middle and several transverse veins in apical area, forming an irregular line; costal membrane broad; a forked vein in clavus; wings small, wider than tegmina; legs simple; posterior tibiæ with a small spine before middle." (*Melichar.*)

1840. **Tangina bipunctata,** *Melich. Hom. Faun. Ceylon,* p. 44, t. ii, f. 19, *a, b, c* (1903).

"Pale yellowish; in front of face between the ridges two black longitudinal streaks, and at apex of vertex near border of face two black quadrangular spots, which are separated by the yellow middle ridge and are sometimes absent; eyes brown; face, clypeus, and antennæ pale yellow; on the thorax are two broad longitudinal brown fasciæ, which run parallel from the posterior margins of the eyes across the pronotum and mesonotum, but are sometimes only slightly developed; tegmina hyaline, somewhat yellowish, traversed by slender yellowish veins, a large black spot in first apical area, the transverse veins deliminating this area black, and preceding it in the costal membrane are two oblique brownish streaks; wings hyaline; sternum pale yellowish, a large black spot at sides of prosternum; abdomen pale yellowish, above and at apex beneath often orange-yellow; legs pale yellow, apices of spines and claws brown." (*Melichar.*)

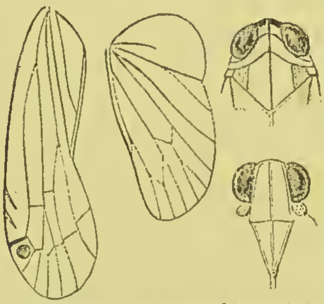

Fig. 139.—*Tangina bipunctata.*

Length, ♂ & ♀, 5 millim.

Hab. Ceylon; Peradeniya (*fide Melichar*).

Genus **KOSALYA**, nov.

Type, *K. flavostrigata,* Dist.

Distribution. Burma.

Head narrower than pronotum; vertex narrow, deflected, somewhat continuous with face, its margins carinate, and with a distinct central ridge; face longer than broad, medially slightly ampliate and then narrowed to clypeus, laterally and centrally ridged; clypeus about half as long as face, with a strong central ridge, and

with its lateral margins distinctly acutely carinate; pronotum short, very strongly angularly emarginate at base, centrally tricarinate; mesonotum very long, about twice as long as vertex and pronotum together, tricarinate; legs moderately long and slender, posterior tibiæ with two short spines, posterior tarsi with the basal joint very long; tegmina apically moderately widened, distinctly ampliate behind the clavus, claval vein reaching apex, middle basal longitudinal vein forked, two transverse veins near central disk, aud an incomplete subapical series of trausverse veins; wings considerably wider than tegmina.

1841. **Kosalya flavostrigata**, sp. n.

Head, pronotum, and mesonotum pale sanguineous; central ridges to vertex and pronotum, eyes, and six spots to mesonotum (of which the largest is on anterior area, divided by the central ridge) black; abdomen above dull castaneous; body beneath and legs

Fig. 140.—*Kosalya flavostrigata.*

ochraceous; face anteriorly moderately piceous; apex of abdomen beneath piceous, anal appendage black; tegmina fuscous, the veins darker, costal membrane and claval area flavescent; wings pale fuscous, the veins darker.

Length excl. tegm. 6; exp. tegm. 18 millim.

Hab. Burma; Ruby Mines (*Doherty*).

Mr. Doherty sent me only a single specimen of this brightly coloured species.

Geuus **USANA**, nov.

Type, *U. lineolalis*, Dist.

Distribution. Tenasserim.

Head (includiug eyes) narrower than prouotum; vertex strongly tricarinate, a little narrowed anteriorly; face half as long again as clypeus, a little ampliate posteriorly, centrally and laterally carinate; clypeus subtriangular, its lateral margins finely carinate and with an incomplete central ridge; pronotum short, centrally tricarinate, its posterior margin strongly subaugularly emarginate; mesonotum very large, three times as long as pronotum, with three strong discal straight carinations; legs moderately long, posterior tibiæ with a small spinc before middle, posterior tarsi

with the basal joint elongate; tegmina moderately long and narrow, ampliate behind clavus and at posterior margin of apical area; stigma long with coarse raised transverse veins, a distinct series of transverse veins a little before apical margin delimitating the range of short apical areas, the longitudinal veins bifurcating; wings a little broader than tegmina.

1842. **Usana lineolalis**, sp. n.

Body above ferruginous-brown; the carinæ to vertex, pronotum, and mesonotum flavescent, those to mesonotum very slightly margined with piceous; abdomen with the base and segmental margins flavescent; eyes and spaces between the carinæ of vertex piceous; body beneath and legs very pale ochraceous; tegmina

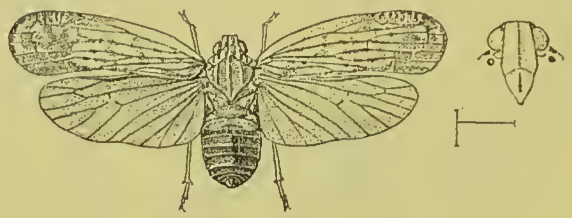

Fig. 141.—*Usana lineolalis.*

pale fuliginous-grey, with darker mottlings, especially on apical area; stigma black with six raised coarse transverse white veins, upper half of apical margin fuscous; wings fuliginous, the venation fuscous.

Length excl. tegm. 4; exp. tegm. 14 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Mr. Doherty sent me a single specimen of this species.

The following genera and species have been described, but not figured, by Dr. Melichar, and being unable to see a cotype of either of them, I have quite failed to obtain a clear impression of their position in the *Achilinæ*. I can, therefore, merely draw attention to them, and trust that by the time an Appendix appears in the next volume I may have been able, by the help of my indefatigable friend Mr. E. E. Green, to have examined specimens to which these descriptions refer.

Gordia oculata, Melich. Hom. Faun. Ceylon, p. 43 (1903).

Epirama conspergata, Melich. tom. cit. p. 45.

Paratangia notata, *marginata*, et *fimbriolata*, Melich. tom. cit. pp 46 & 47.

Subfamily VII. DERBINÆ.

Derbida, *Stål, Hem. Afr.* iv, pp. 130 & 192 (1866).
Derbina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 750; *Atkins. J. A. S. Beng.* lv, p. 41 (1886).
Derbidæ, *Melich. Hom. Faun. Ceylon*, p. 11 (1903).

Head (including eyes) generally narrower than the pronotum; clypeus with the lateral margins sometimes carinate; apical joint of rostrum either short or minute; pronotum posteriorly angularly emarginate; clavus usually as in *Achilinæ*; posterior tibiæ seldom spinose; basal joint of posterior tarsi elongate.

These extremely fragile insects are of a homogenous character and the subfamily is easily recognizable; the usually narrow vertex and face and the short apical joint of the rostrum are characters which may be relied on, while the genera are well marked and readily separated. Although in some genera considerable aberrance in form from other subfamilies of the Fulgoridæ is apparent, Stål evidently exhibited his usual insight in placing the *Derbinæ* where he did, and I follow his arrangement.

Synopsis of Genera *.

A. Antennæ of ordinary or moderate length, not abnormally developed.
  a. Wings not more, or sometimes less, than half the length of tegmina.
    a. Mesonotum tricarinate.
      a'. Second joint of antennæ only a little longer than head.
        a^2. Face rounded, but not angularly, laminately projecting.
          a^3. Clypeus longer than face .... PHENICE, p. 296.
          b^3. Clypeus shorter than face ...... PAMENDANGA, p. 298.
        b^2. Face angularly, laminately projecting. JADA, p. 299.
      b'. Second joint of antennæ about as long as head and thorax together .... ZORAIDA, p. 300.
    b. Mesonotum smooth, non-carinate ...... DRONA, p. 305.
  b. Wings moderately ample, considerably more than half the length of tegmina.
    a. Head longly produced in front of eyes.
      a'. Head not compressed and laminately produced beneath .... INTERAMMA, p. 306.
      b'. Head compressed and strongly laminately produced beneath .... VIVAHA, p. 307.
    b. Head not, or only slightly, produced in front of eyes.
      a'. Costal membrane of tegmina distinctly arched and dilated.

* Beyond the synoptical characters here given, the structural characters of the face as delineated in the figures representing each genus may be studied with advantage.

a^2. Tegmina with eight or nine apical areas .... KERMESIA, p. 308.
b^2. Tegmina with only about five apical areas .... NISIA, p. 309.
b'. Costal membrane of tegmina neither distinctly arched nor prominately dilated.
a^2. Tegmina with numerous short apical areas continued round apex on posterior margin of costal area .... KAMENDAKA, p. 310.
b^2. Tegmina with apical areas moderately long and not continued round apex on posterior margin of costal area . RHOTANA, p. 311.
B. Antennæ abnormally developed.
a. Antennæ with the second joint very long and incrassate .... VINATA, p. 314.
b. Antennæ with the first and second joints globose, remaining joints prominently produced and longly pectinate .... DEVADANDA, p. 315.

Genus PHENICE.

Phenice, *Westw. Tr. Linn. Soc.* xix, p. 10 (1845); *Stål, Öfv. Vet.-Ak. Förh.* 1856, p. 163; *id. Hem. Afr.* iv, pp. 193 & 195 (1866); *Atkins. J. A. S. Beng.* lv, p. 41 (1886); *Melich. Hom. Faun. Ceylon*, p. 54 (1903).
Assamia, *Buckt. Ind. Mus. Notes*, iv. p. 1 (1896).
Proutista, *Kirk. Entomologist*, 1904, p. 279.

Type, *P. fritillaris*, Westw., a West-African species.
Distribution. Ethiopian and Oriental Regions.

Head much narrower than the pronotum, seen from the side more or less rounded anteriorly, slightly compressed and narrowly prominent in front of eyes, vertex and face very narrow; clypeus long, tricarinate; eyes posteriorly sinuate beneath; ocelli none; second joint of antennæ varying in length and shape; apical joint of rostrum very minute; pronotum short, posteriorly deeply angularly emarginate; mesonotum and pronotum finely tricarinate; tegmina elongate, gradually amplified from base to middle, thence somewhat convex, and again narrowed upward, much longer than the wings; clavus short; radial vein forked, ulnar vein emitting inwardly oblique longitudinal branches towards the commissural margin, these branches united by a transverse vein; legs slender, posterior tibiæ sometimes spinose.

Kirkaldy (*supra*) has proposed a new name (*Proutista*) for a well-known synonym, *Assamia*, Buckt.

1843. **Phenice moesta**, *Westw.* (Derbe (Phenice)) *A. M. N. H.* (2) vii, p. 209 (1851); *Stål* (Phenice), *Öfv. Vet.-Ak. Förh.* 1870, p. 750; *Atkins. J. A. S. Beng.* lv, p. 41 (1886); *Melich. Hom. Faun. Ceylon*, p. 54, t. ii, f. 11. (1903).
Assamia dentata, *Buckt. Ind. Mus. Notes*, iv, p. 1, t. i (1896).

Body black; vertex of head and face, central carina to clypeus,

eyes, antennæ, central fascia to pronotum, carinæ to mesonotum, posterior margin of metanotum, central maculate fascia to abdomen above, anal appendage, rostrum, and legs stramineous; tegmina black, with paler greyish-white spots, consisting of a somewhat continuous series on costal area, two prominent on apical margin, and the largest in oblique discal series; wings fuliginous, the venation fuscous.

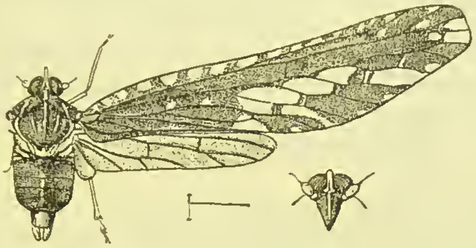

Fig. 142.—*Phenice moesta.*

Length excl. tegm. $2\frac{1}{2}$ to 3; exp. tegm. $13\frac{1}{2}$ to 14 millim.

Hab. Assam; Dibrugarh (*fide Buckton*). Bombay (*Coll. Dist.*). Ceylon (*Yerbury*); Puttalam, Minikoi (*Green*).

The Rev. C. Dowding, of Dibrugarh, Assam, found this insect in considerable numbers on the underside of the leaves of a kind of palm-tree. Mr. Green has also recorded it as frequenting the leaves of a sycamore in Ceylon.

1844. **Phenice superba**, sp. n.

Head, thorax above, sternum, and legs brownish-ochraceous, the latter two a little paler; abdomen sanguineous; tegmina fuliginous, the venation sanguineous, the costal, apical, and inner margins ornamented with larger irregularly-shaped greyish-white spots, basal area a little paler; wings pale fuliginous, the venation fuscous; body somewhat convexly gibbous; mesonotal carinæ distinct; clypeus strongly tricarinate; rostrum robust, its apical joint minute and piceous; antennæ with the second joint long, roundly incrassate, pale ochraceous, granulate on basal area; legs more or less deeply longitudinally grooved.

Length excl. tegm. 5; exp. tegm. 26 millim.

Hab. Assam; Khási Hills (*Brit. Mus.*).

1845. **Phenice punctativentris**, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 144, t. v. f. 6 (1891); *Melich. Hom. Faun. Ceylon*, p. 55 (1903).

Vertex of head more or less pale virescent, eyes brown; pronotum and mesonotum very pale dull ochraceous; abdomen pale testaceous, with a double series of black spots on each side of its upper surface; body beneath and legs very pale dull ochraceous; tegmina semihyaline, a broad longitudinal subcostal fascia

posteriorly margined with well separated ray-like linear spots, elongate marginal suffusions on posterior margin, some small apical marginal spots, and a series of obliquely transverse discal spots pale fuscous-brown; wings pale fuliginous, semihyaline, the venation fuscous; the narrow face is very strongly longitudinally ridged between the eyes; central carination to clypeus robustly prominent; second joint of antennæ robust, somewhat long and cylindrical, stramineous; tegmina with the inner margin straight, and gradually ampliate to about middle, whence it is distinctly convexly ampliate to lower apical angle; costal membrane broad, with what appear to be one or two transverse veins before middle.

Length excl. tegm. 3; exp. tegm. 13 to 14 millim.

Hab. Ceylon; Pundaluoya (*Green*).

1846. **Phenice furcato-vittata**, *Stål* (Derbe), *Öfv. Vet.-Ak. Förh.* 1855, p. 191; *id.* (Phenice) *tom. cit.* 1856, p. 163; *Motsch.* (Derbe) *Bull. Soc. Nat. Mosc.* 1863, p. 113; *Melich. Hom. Faun. Ceylon*, p. 55 (1903).

"Fuscous, narrow face and the legs flavous; tegmina white, hyaline, apex subglaucous, a fuscous bifurcate vitta at apex, medially emitting a ramus; wings fuscous; abdomen fulvescent." (*Stål.*)

Length of body 4; exp. tegm. 13 millim.

Hab. Ceylon (*fide Motschoulsky*).—Java (*Stål*).

Neither Kirby, Melichar, nor myself have seen a Ceylonese example of this species, and it is included in this enumeration solely on the authority of Motschoulsky.

Genus **PAMENDANGA**, nov.

Type, *P. rubilinea*, Dist.

Distribution. Tenasserim.

Head (including eyes) very much narrower than pronotum; vertex narrow, triangular, widened posteriorly, its apex a little prominent; face narrow, laminate, convex, centrally carinate; clypeus shorter than face, centrally strongly carinate; antennæ inserted beneath eyes, second joint moderately long and incrassate; pronotum very narrow and very strongly angularly emarginate posteriorly, centrally longitudinally and laterally transversely carinate; mesonotum large, tricarinate; legs long and slender, posterior tarsi with the basal joint moderately thickened; tegmina broadened before middle, a little convexly narrowed to apex, which is truncate, costal membrane with indistinct obliquely transverse veins, a broken series of discal transverse veins in longitudinal sequence, apex of costal margin and upper half of apical margin with obliquely transverse veins; wings moderately long and narrow.

Allied to *Jada*, from which it differs by the much less and conically produced face, broader tegmina and wings, the latter also shorter.

1847. **Pamendanga rubilinea**, sp. n.

Body and legs pale ochraceous ; a curved fascia on underside of eyes ; disk of sternum and abdomen beneath more or less suffused with dark castaneous ; tegmina semihyaline, venation brownish, in some places like the transverse veins fuscous, some irregular fuscous suffusions, which are most prominent at base, lower medial area, in radial and beyond radial area, centre of lower

Fig. 143.—*Pamendanga rubilinea.*

postcostal vein bright carmine-red; wings semihyaline, more or less suffused with fuscous, palely on apical area, and deeply fasciate on anal area. In some, perhaps fresher, specimens the pronotum and posterior angle of mesonotum are virescent and the basal area of the abdomen stramineous ; on the costal margin of tegmina beyond middle there are five minute carmine-red spots.

Length excl. tegm. 4 ; exp. tegm. $16\frac{1}{2}$ millim.

Hab. Tenasserim ; Myitta (*Doherty*).

Genus **JADA**, nov.

Type, *J. nitagalensis*, Kirby.

Distribution. Ceylon.

Head (including eyes) considerably narrower than pronotum ; vertex very narrow, produced and curved downward considerably in front of eyes, its central area sulcate ; face laminately angularly projecting ; clypeus large, tricarinate ; antennæ inserted beneath the eyes, second joint of moderate length, robust ; pronotum about as long as eyes, posteriorly strongly subangularly emarginate, obsoletely tricarinate ; mesonotum large, convex, strongly tricarinate ; legs moderately long and slender, posterior tibiæ with a single spine, posterior tarsi with the basal joint very long ; tegmina strongly subangularly sinuate before middle of costal margin at apex of costal membrane, which is somewhat abruptly discontinuous, the postcostal area much ampliated towards apex and containing three transverse veins, the first short and slightly oblique, the outer two longitudinally curved, the upper longitudinal vein with a transverse vein above at a little beyond middle, and beneath emitting long, curved, oblique veins to posterior margin, about two transverse veins on disk, and about the same number beyond radial area ; wings nearly half as long as tegmina.

1848. **Jada nitagalensis**, *Kirby* (Derbe?), *J. Linn. Soc., Zool.* xxiv, p. 142, t. v. f. 3 (1891).

Tawny-yellow; vertex of head, thoracic carinations, and face nearly pure white; apices of the tarsi black; tegmina pale tawny-brown, the veins yellow with whitish semihyaline spots or fasciæ, one occupying nearly the whole area of costal membrane, three in

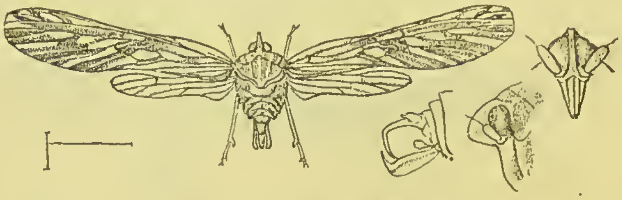

Fig. 144.—*Jada nitagalensis.*

postcostal area, one beneath costal membrane and another beneath base of postcostal area, and about twelve others of various sizes scattered from base to apex; wings semihyaline, the venation broadly tawny-yellow.

Length excl. tegm. 4; exp. tegm. 18 millim.

Hab. Ceylon (*Yerbury*); Nitagala (*Green*).

Dr. Melichar (Hom. Faun. Ceylon, t. ii, f. 14) has figured a species as *Thracia nitagalensis*, Kirby, which is neither congeneric nor conspecific with Kirby's species.

Genus **ZORAIDA.**

Thracia, *Westw. Tr. L. S.* xix, p. 10 (1842); *Melich. Hom. Faun. Ceylon*, p. 55 (1903), nom. præocc. (Moll.).
Zoraida, *Kirk. Entomologist*, 1900, p. 242, n. nom.

Type, *Z. sinuosa*, Westw., a West-African species.

Distribution. Ethiopian and Oriental Regions.

Head much narrower than pronotum, vertex triangularly narrow between the eyes; face linear, narrow; clypeus long, tricarinate; eyes moderately sinuate beneath; antennæ with the second joint very long; apical joint of rostrum minute; pronotum short, tricarinate, the lateral carinæ obsolete; mesonotum obscurely tricarinate; legs slender, posterior tibiæ with a distinct spine; tegmina elongate, their apices truncate, a little sinuate at posterior margins, clavus short, the obliquely transverse veins divided by a longitudinal discal series of eight transverse veins, thus demarcating twelve or thirteen apical areas; wings very short.

1849. **Zoraida pterophoroides**, *Westw.* (Derbe (Thracia)) *A. M. N. H.* (2) vii, p. 210 (1851); *Melich.* (Thracia) *Hom. Faun. Ceylon*, p. 56 (1903).

Head, thorax, and legs very pale ochraceous; anterior femora somewhat testaceous; abdomen whitish on basal, pale ochraceous

on apical area, more or less infuscate on lateral areas; tegmina pale semihyaline, the costal area widening a little before apex, basal suffusion, the discal transverse veins, and some small spots

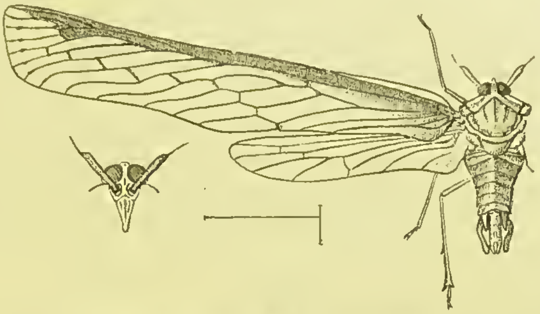

Fig. 145.—*Zoraida pterophoroides.*

near apices of longitudinal veins at apical margin fuliginous-brown, remaining venation a little paler brown; wings subhyaline, the venation very pale brown.

Length excl. tegm. $4\frac{1}{2}$ to 5; exp. tegm. 26 millim.

Hab. Kangra Valley (*Dudgeon*). Ceylon; Peradeniya (*Green*). Upper Burma; Katha (*Bingham*).

1850. **Zoraida cumulata**, *Walk.* (Thracia) *J. Linn. Soc., Zool.* x, p. 139 (1868); *Melich. Hom. Faun. Ceylon*, p. 56 (1903).

Body above dark tawny-brown, the thoracic carinations flavescent; body beneath and legs ochraceous; eyes black; tegmina pale fuscous, the costal and apical areas greyish, with numerous small fuscous spots, and with a large subelongate fuscous spot at apex of costal area, all the veins minutely spotted with fuscous, the posterior margin alternately grey and dark fuscous, some of the grey interspaces minutely spotted with fuscous, a linear vein-like fascia commencing near base, obliquely extending to posterior margin at about one-third from base, and then obliquely, outwardly, upwardly recurved to near middle of tegmen, piceous; wings absent in specimen described, but, according to Walker, "brownish, less than half the length of the tegmina"; antennæ with the second joint incrassate, long, and prominent; tegmina long and narrow, widened from before middle to apex, which is truncate, the anterior and posterior margins subparallel.

Length excl. tegm. $5\frac{1}{2}$; exp. tegm. 27 millim.

Hab. Ceylon; Kandy and Nawalapitya (*Green*).—Amboina, Bouru.

1851. **Zoraida ceylonica**, *Kirby* (Thracia), *J. Linn. Soc., Zool.* xxiv, p. 143 (1891); *Melich. Hom. Faun. Ceylon*, p. 56 (1903).

Vertex of head stramineous; pro- and mesonota pale dull ochraceous; sternum and legs ochraceous, lateral areas of prosterna greyish-white; abdomen testaceous, more or less piceous

at base and apex; tegmina very pale fuliginous, semihyaline, the venation pale fuscous; costal membrane and postcostal area red, pale ochraceous for a short distance at a little beyond base, apical margin fuscous, with the apices of the veins ochraceous, the veins of the upper apical area red, a fuscous spot at the bases of the upper two apical areas, and another fuscous spot beneath about middle of costal area; wings very small, fuliginous, subhyaline, the venation and the apex fuscous; the narrow face strongly ridged between eyes; central carination to clypeus prominent; second joint of antennæ very long, moderately incrassate, pale ochraceous, testaceously granulate; tegmina broadly ampliate on posterior margin at about one-third from base, their apical margins truncate.

Length excl. tegm. 4; exp. tegm. 26 to 27 millim.

Hab. Ceylon (*Yerbury & Green*).

As Mr. Kirby remarked, this species is allied to *Z. ephemeralis*, Walk., from New Guinea; I have also another allied species from Borneo.

1852. **Zoraida lankana**, *Kirby* (Thracia), *J. Linn. Soc., Zool.* xxiv, p. 143 (1891); *Melich. Hom. Faun. Ceylon*, p. 57 (1903).

Head and mesonotum brownish-ochraceous; pronotum stramineous; abdomen above and body beneath and legs brownish-ochraceous; abdomen above with lateral brown spots, anal segment more or less bright red; tegmina semihyaline, the venation fuscous-brown, costal vein red, costal area ochraceous and from about end of basal third to apex containing a series of prominent brown spots, apices of the veins at apical and posterior margins minutely infuscate, and the same remark applies to the bases of the veins beneath the costal membrane, the obliquely transverse discal veins and those at apex of radial area also moderately infuscate, and a fuscous spot at apex of claval area; wings very short and small, very pale fuliginous, the veins darker; second joint of antennæ very long, ochraceous, slightly incrassate at apex, where it is distinctly red, and the whole very finely and minutely speckled with red; carinæ to face and clypeus very distinct; tegmina distinctly finely serrate on basal third of costal margin.

Length excl. tegm. 4; exp. tegm. 22 to 25 millim.

Hab. Ceylon; Nawalapitya (*Green*).

1853. **Zoraida rufivena**, sp. n.

Body above tawny-grey, beneath with legs very pale ochraceous; margins of vertex, carinations to mesonotum (of which the two outermost are outwardly curved and do not reach anterior margin), posterior margin of mesonotum, and a central longitudinal line to abdomen above greyish; upper surface of abdomen near middle obscurely suffused with piceous; tegmina greyish subhyaline

tinged with pale brownish between the veins, which are red and somewhat closely spotted with pale fuscous, costal area with small closely arranged fuscous spots extending beyond middle, after which there is an elongate piceous spot, and an elongately oblique subcostal piceous spot a little before apex, posterior margin from about one-third from base greyish with pale fuscous spots, apical margin with two transverse series of small fuscous spots, those of the inner series minute and placed close together, the transverse discal veins and an oblique discal line before middle piceous, extreme edge of basal costal margin greyish-white; wings short, pale fuliginous, the veins fuscous; second joint of antennæ moderately long, robust, dull ochraceous.

Length excl. tegm. 4; exp. tegm. 20 millim.

Hab. Ceylon; Perandeniya (*Green*).

1854. **Zoraida obsoleta**, *Kirby* (Thracia?), *J. Linn. Soc., Zool.* xxiv, p. 144, t. v, f. 7 (1891); *Melich.* (Thracia) *Hom. Faun. Ceylon*, p. 57 (1903).

Body above dark fuscous-brown; body beneath and legs ochraceous; tegmina and wings pale semihyaline, bases of both fuscous-brown, tegmina with a prominent piceous spot near end of claval area; eyes fuscous-brown; thoracic carinations somewhat slight; tegmina broadened at about one-fourth from base and moderately ampliated to apex, the posterior margin very slightly convex, the apical margin truncate; wings very short, not reaching anal angle of tegmina.

Length excl. tegm. 4; exp. tegm. 24 millim.

Hab. Ceylon; Pundaluoya, Maskeliya (*Green*).

1855. **Zoraida motschoulskyi**, sp. n.

Vertex of head and thorax above very pale luteous, eyes brownish-ochraceous; abdomen above castaneous, its base and disk stramineous, the anal appendage testaceous; body beneath and legs stramineous; tegmina and wings subhyaline, venation stramineous; tegmina with the costal area stramineous, and near apex exhibiting a piceous bifurcating venal spot, to which is attached, and of the same colour, the transverse vein at the base of the adjoining apical area, a piceous spot near middle of anal margin; second joint of antennæ very long, its apex infuscate; mesonotum obsoletely tricarinate; vertex of head somewhat triangular; tegmina ampliated at about one-third from base, their apices truncate; wings short, almost reaching apex of anal angle.

Length excl. tegm. 4; exp. tegm. 24 millim.

Hab. Ceylon, Maskeliya (*Green*).

1856. **Zoraida gilva**, sp. n.

Body above fulvous-brown, apex of abdomen ochraceous; body beneath, antennæ, and legs pale stramineous; tegmina and wings semihyaline, the venation very pale ochraceous, tegmina with a

small black spot near apex of claval area; antennæ with the second joint very long, pale ochraceous, stramineous at base; eyes fulvous-brown; thorax above somewhat pale, the anterior lateral margins testaceous, the disk fulvous; tegmina broadened at about one-fourth from base and ampliate towards apex, which is subtruncate; wings short, about reaching anal angle of tegmina.

Length excl. tegm. 3½; exp. tegm. 24 millim.

Hab. Ceylon; Bogawantalawa (*Green*).

1857. **Zoraida egregia**, *Melich.* (Thracia) *Hom. Faun. Ceylon*, p. 58, t. ii, f. 18, *a* (1903).

"Body rusty-yellow; head and eyes distinctly narrower than pronotum; vertex and face whitish-yellow; clypeus broader than face, longly triangular, convex, tricarinate; eyes black; pronotum in middle very narrowly and on the sides more broadly pale yellow; mesonotum convex, a little longer than broad, rusty-yellow, above and covering the three longitudinal ridges are three longitudinal white fasciæ, sometimes the lateral margins are also whitish; tegmina very long, narrow, rounded at apices, hyaline, of a yellowish colour, veins thickened and rusty-yellow, the outermost longitudinal vein forked before middle, the branches parallel, enclosing a long narrow cell, the outer branch sending several oblique white transverse veins to costal vein, which is also white, the inner fork running bifurcately into the apical tip, and emitting before this two branches to costal margin, the second longitudinal vein runs parallel with the first to apical margin, with the inner fork of which it is connected about the middle of tegmen by a strong, short, brown-bordered transverse vein, from this longitudinal vein several branches run obliquely across the corium to the margins of the wings and are connected with brown-bordered cross-veins; a forked vein in clavus; wings small; abdomen rusty-brown, margins of dorsal segments rusty-yellow, two distinct black spots on the fourth dorsal segment near posterior margin; thorax and legs pale yellow; posterior tibiæ with one small spine." (*Melichar.*)

Length 9; exp. tegm. 16 millim.

Hab. Ceylon; Henaratgoda (*fide Melichar*).

I have no personal knowledge of this species.

1858. **Zoraida ficta**, sp. n.
Thracia nitagalensis, *Melich.* (*nec Kirby*) *Hom. Faun. Ceylon*, p. 59, t. ii, f. 14 (1903).

The species described and figured by Dr. Melichar as *T. nitagalensis*, Kirby, is apparently a true *Zoraida*, and represents a species allied to *Z. cumulata*, Walk., from which it appears to be principally distinguished by a series of dark spots for more than half the length of the costal area, and by two large transverse dark spots on the apical area.

Length, ♀, 14; exp. tegm. 23 millim. (*fide Melichar*).

Hab. Ceylon.

The species is said to be founded on a single example contained in the Colombo Museum, and I defer describing it till a specimen has reached my hands.

Genus **DRONA**, nov.

Type, *D. carnosa*, Westw.

Distribution. Oriental Region.

Head much narrower than pronotum; vertex elongate, narrow, laterally strongly ridged between eyes and distinctly projecting beyond them; face very narrow and laterally ridged; clypeus large, tricarinate, the lateral carinæ somewhat obscure; rostrum robust, the apical joint minute; pronotum narrow, posteriorly strongly subangularly emarginate; mesonotum large, moderately convex, neither pronotum nor mesonotum carinated; abdomen in the male furnished apically with a pair of long, forceps-like, anal appendages; legs of moderate length, more or less distinctly longitudinally grooved, posterior tibiæ not spined; tegmina long, ample, obliquely narrowed at inner margin from about middle to base, apical margin truncate, costal membrane with an oblique transverse vein near middle; upper ulnar area very long, extending from radial area to near apex, with a transverse vein near middle and five short veins on and around its apical margin, beneath it a longitudinal series of obliquely transverse veins, the apical areas long; wings very short and narrow.

1859. **Drona carnosa**, *Westw.* (Derbe (Phenice ?)) *A. M. N. H.* (2) vii, p. 210 (1851); *Atkins.* (Phenice) *J. A. S. Beng.* lv, p. 42 (1886).

Head, thorax, and legs testaceous-red, tibiæ and tarsi more or less infuscate; abdomen shining black; tegmina very pale

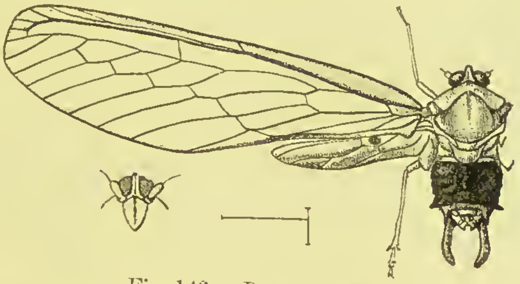

Fig. 146.—*Drona carnosa.*

fuliginous-hyaline, extreme base and costal membrane pale ochraceous, the latter with its margins prominently piceous; venation piceous; wings hyaline, the posterior margins fuscous.

Length excl. tegm. 3½; exp. tegm. 20 to 21 millim.

Hab. "North India" (*Brit. Mus.*).

The type or a cotype of this species, labelled by the late Prof. Westwood, is in the British Museum, and from it the

above figure has been made. The only variable character I have observed is in the colour of the prominent anal appendages, which are either totally black, or testaceous with their apices black.

1860. **Drona pennata**, sp. n.

Body and legs flavescent; face as seen between eyes sanguineous; abdomen beneath with three prominent basal black spots (one central and one on each lateral margin); eyes piceous; tegmina semihyaline, the venation flavescent, basal third of extreme costal margin and apical third of inner margin to costal area fuscous, the apical half of costal area flavescent; wings semihyaline, base orange-yellow with a posterior black spot, apical two-thirds semihyaline, with the posterior margin and an oblique discal fascia fuscous.

Length excl. tegm. 3; exp. tegm. 14 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Of this distinct and beautifully marked species I possess only one specimen, and that in somewhat indifferent condition; I can, therefore, only describe the colour-characters.

Genus **INTERAMMA.**

Interamma, *Walk. J. Linn. Soc., Zool.* x, p. 118 (1867); *Melich. Hom. Faun. Ceylon*, p. 60 (1903).

Type, *I. ascendens*, Walk., from the Island of Morty.

Distribution. Oriental and Malayan Regions.

"Body slender; head cultriform or extremely compressed and dilated vertically, as long as the thorax, with two edges above and with one edge beneath; eyes prominent; antennæ cylindrical, more than half the length of the head, forked at the base, third joint very short; pronotum short, arched; mesonotum not keeled; legs short, slender; tegmina and wings narrow; tegmina with an irregular submarginal line of transverse veins." (*Walker.*)

I have only copied Walker's short and imperfect generic diagnosis, because I believe more than one genus is included in the species he enumerated. The two specimens of the Ceylonese species here included are mutilated in the cephalic process, which prevents exact generic identification, and I have therefore followed Melichar in regarding the species as belonging to the genus *Interamma*.

1861. **Interamma rubrofasciata**, *Melich. Hom. Faun. Ceylon*, p. 61, t. ii, f. 8 (1903).

Dark stramineous; head and pronotum much suffused with sanguineous; mesonotum with the lateral margins and three central longitudinal fasciæ sanguineous; tegmina with the base of costal margin, the posterior margin, an irregularly oblique

transverse fascia before middle commencing beneath the costal membrane, and the apical area (obliquely rounded to apex) sanguineous; in some specimens the apical area is subhyaline, with its margins and venation sanguineous, in others the intercellular spaces are fuscous-brown; tegmina with three prominent longitudinal veins, of which the upper and lower are bifurcate, the apical area with numerous transverse veins, forming a number of somewhat small cellular areas, of which about the upper apical four are longitudinal, followed by six medial-oblique areas, and again by about five posterior, marginal, shorter, and moderately oblique areas, the costal margin is distinctly concavely emarginate before apex; wings creamy-white, the venation somewhat prominent.

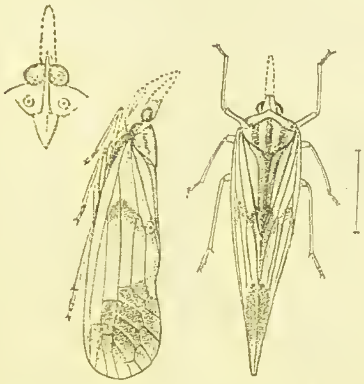

Fig. 147.—*Interamma rubrofasciata.*

Length with tegm. 12 millim.

Hab. Ceylon; Kandy (*Green*).

Genus **VIVAHA**, nov.

Type, *V. facialis*, Dist.

Distribution. Oriental Region.

Head (including eyes) much narrower than pronotum, the vertex longly produced in front of eyes into a broadly laminate process, very narrow and centrally sulcate above, laterally very broad and flattened, its apex rounded, its margins carinate, face small and marginally carinate; rostrum mutilated in the two specimens available for description; pronotum very short, basally deeply angularly emarginate; mesonotum tricarinate; legs moderately long and slender; tegmina considerably ampliated towards apex, the costal margin a little convex, the apical margin truncate, a little obliquely angulate anteriorly and posteriorly, the posterior margin concavely sinuate before the commencement of the apical area, the lower longitudinal vein furcate beyond its middle, oblique veins on lower half of apical area separating five distinct, long, oblique, cellular areas, followed by about four shorter ones, there are also four apical marginal areas; wings shorter and a little narrower than tegmina.

This genus is founded on the examination of two specimens, both of which, as regards the condition of face and clypeus, leave much to be desired. The extraordinary cephalic process is its principal distinctive character.

1862. **Vivaha facialis**, sp. n.

Head ochraceous, its vertex and margins testaceous-red; thorax testaceous-red; abdomen and legs stramineous; tegmina flavescent, a narrow linear basal fascia, a broader oblique fascia near

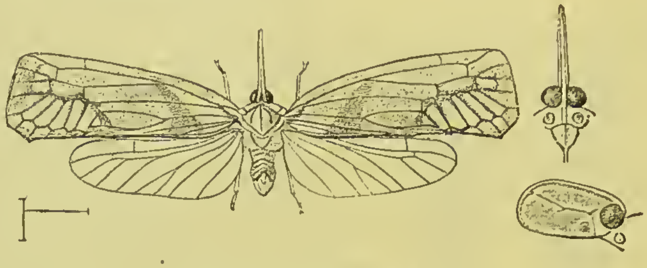

Fig. 148.—*Vivaha facialis.*

middle, posterior margin, and the apical venation more or less purplish-red, the apical cellular areas somewhat vitreous; wings pale creamy-hyaline.

Length excl. tegm. 5 to 6; exp. tegm. 16 millim.

Hab. Andaman Islands (*Brit. Mus.*). Tenasserim; Myitta (*Doherty*).

Genus **KERMESIA**.

Kermesia, *Melich. Hom. Faun. Ceylon*, p. 52 (1903).

Type, *K. albida*, Melich.

Distribution. Ceylon.

Head (including eyes) narrower than pronotum; vertex and face continuous, their lateral margins strongly carinate and parallel to clypeus which is strongly centrally ridged; rostrum with the apical joint minute; pronotum narrow, with all its margins strongly ridged and with a strong central carination; mesonotum somewhat obscurely tricarinate, the carinations confined to the anterior area; legs of moderate length, posterior tibiæ with a single spine; tegmina short and broad, apically ampliated, the costal margin somewhat strongly sinuate, costal membrane broad with a single transverse vein, two series of transverse veins, the first before middle connecting the longitudinal veins, the second deliminating eight or nine apical areas; wings a little narrower than tegmina.

A genus to be easily recognized by the shape and venation of the tegmina.

1863. **Kermesia albida**, *Melich. Hom. Faun. Ceylon*, p. 53, t. i, f. 14, *a*, *b* (1903).

Body and legs pale tawny, abdomen more or less cretaceously

tomentose; tegmina and wings creamy-white; tegmina much

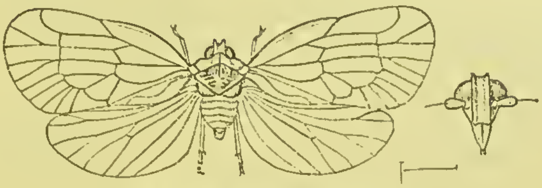

Fig. 149.—*Kermesia albida.*

wrinkled, radial and claval veins thickened and prominent; apices of tarsi infuscate.

Length excl. tegm. 3; exp. tegm. 13 millim.

Hab. Ceylon; Peradeniya (*Green*).

Genus NISIA.

Nisia, *Melich. Hom. Faun. Ceylon*, p. 53 (1903).

Type, *N. atrovenosa*, Leth.

Distribution. Oriental Region.

Dr. Melichar diagnoses this genus as follows:—"Similar to *Kermesia* by structure of head, but especially differs by the narrower tegmina and by the direction of the strongly prominent and thickened veins in the apical area, which number only five, and of which the second and fourth are forked; in *Kermesia* these veins are always eight or nine, partly simple and partly forked terminal veins; other characters as in *Kermesia*."

Of the above characters, from the material before me, I cannot describe the fourth apical vein of the tegmina as forked, at least in the specimen I identify and figure as *N. atrovenosa*, Leth., which Melichar gives as the type of his genus.

1864. **Nisia atrovenosa**, *Leth.* (Meenoplus) *Ann. Mus. Genov.* xxvi, p. 466 (1888); *Melich.* (Nisia) *Hom. Faun. Ceylon*, p. 53 (1903).

Body and legs very pale ochraceous; vertex of head with the carinæ piceous and very finely granulose, the space between them

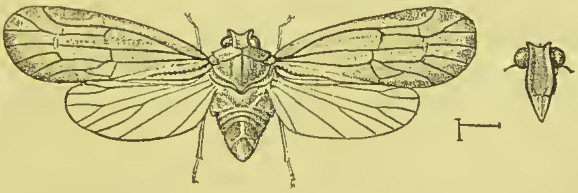

Fig. 150.—*Nisia atrovenosa.*

profoundly concave; lateral carinate margins of face piceous: tegmina greyish with a slight ochraceous tint, the venation

piceous, the central transverse veins on apical area distinctly cretaceous, the external suture to clavus arcuate and distinctly granulose; wings creamy-white, the venation darker; tegmina with the first and second apical veins bifurcating, the other apical veins simple.

Length excl. tegm. 2; exp. tegm. $8\frac{1}{2}$ millim.

Hab. Trincomalee (*fide Melichar*). Ceylon, Peradeniya (*Green*).—Nias Islands.

1865. **Nisia albovenosa**, sp. n.

Head and pronotum very pale ochraceous; mesonotum pale castaneous-brown, the carinations and posterior margins flavescent or very pale ochraceous; abdomen pale castaneous-brown, discally more or less suffused with cretaceous pile; face greyishly-flavescent; clypeus and legs very pale ochraceous; sternum pale brownish, abdomen beneath piceous-brown; tegmina with the venation white, the cellular areas pale brown with whitish spots, these spots being most prominent on apical margin and discal area, the basal areas nearly totally white, the external claval suture white and granulose, followed by two curved fuscous-brown linear fasciæ, their interspace flavescent; wings creamy-white, the venation darker; apical area of tegmina with three series of bifurcate veins, thus bringing up the number to six instead of five *; costal membrane broad.

Length excl. tegm. $2\frac{1}{2}$; exp. tegm. 9 millim.

Hab. Ceylon; Pundaluoya (*Green*).

Genus **KAMENDAKA**, nov.

Type, *K. spectra*, Dist.

Distribution. Ceylon.

Head (including eyes) very much narrower than pronotum; vertex projecting beyond the eyes, somewhat flat, conically rounded anteriorly, and at the apex the upper margins of the face appear as two angulations, its base angularly emarginate; face as seen beneath the flattened vertex very narrow to between eyes and then broadened to clypeus, which is a little convex, apical joint of rostrum minute; pronotum very narrow, strongly centrally angulate; mesonotum large, more than four times longer than pronotum, very obsoletely carinate; legs moderately long, posterior tibiæ not spined, basal joint of posterior tarsi elongate; tegmina elongate, its margins parallel, the apex obtusely angulate, the apical margin oblique, the longitudinal veins bifurcating posteriorly and delimitating, a number of irregularly shaped subapical areas, a regular series of transverse veins before apical margin defining numerous short apical areas, some transverse veins beyond middle of costal membrane; wings ample, only a little shorter and slightly broader than tegmina.

* Generic divisions in these Homoptera must not be based on too rigid characters in venation.

1866. **Kamendaka spectra**, sp. n.

Body and legs very pale dull flavescent, above cretaceously tomentose in fresh specimens, frequently with the tomentosity rubbed, and then appearing as ochraceous; tegmina creamy-white, opaque, with two very pale fuscous-brown transverse

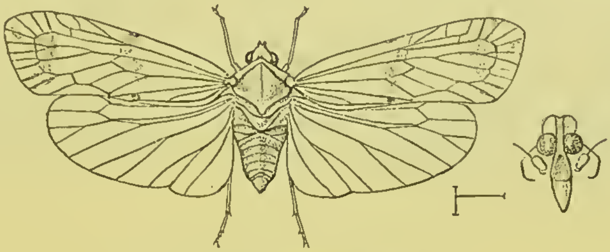

Fig. 151.—*Kamendaka spectra.*

fasciæ, the first near middle, the other subapical, a more distinct small fuscous spot at about centre of posterior margin, the extreme apical margin slightly infuscate; wings creamy-white, unspotted, the veins very slightly yellowish.

Length excl. tegm. 3; exp. tegm. 11 to 12 millim.

Hab. Ceylon; Maskeliya (*Green*).

1867. **Kamendaka fuscofasciata**, sp. n.

Body and legs pale ochraceous; vertex of head tomentosely white with dark fuscous lateral fasciæ united with eyes which are of the same colour; mesonotum with broad fuscous lateral fasciæ, its posterior angle greyish; tegmina semi-opaque, cretaceous-white, with a broad longitudinal slaty-brown fascia extending from base to apex, and situate much nearer to the posterior than to the anterior margin, apex with two small black spots; wings creamy-white, a little iridescent.

Length excl. tegm. $2\frac{1}{2}$; exp. tegm. 10 millim.

Hab. Ceylon; Maskeliya (*Green*).

Genus **RHOTANA.**

Rhotana, *Walk. J. Linn. Soc., Zool.* i, p. 160 (1857); *Melich. Hom. Faun. Ceylon*, p. 61 (1903).
Genestia, *Stål, Öfv. Vet.-Ak. Förh.* 1858, p. 450.

Type, *R. latipennis*, Walk., from Borneo *.

Distribution. Oriental and Malayan Regions.

Head (including eyes) much narrower than pronotum; vertex

* This species is wrongly numbered on Walker's plate (J. Linn. Soc., Zool. i, t. viii, 1857). In his description of the plate he refers the species to fig. 2, whereas it is represented by fig. 1.

narrow, triangular, its margins strongly carinate and continuous with the narrow frontal edge of the much laminately compressed produced face, the carinate margins of which are widely divergent posteriorly; clypeus long, the margins strongly ridged; rostrum robust, somewhat short, the apical joint minute; pronotum narrow, tricarinate, its lateral angles angularly produced, its posterior margin strongly angularly emarginate; mesonotum somewhat obscurely tricarinate; legs of moderate length, basal joint of posterior tarsi elongate; tegmina ampliated to apex which is angularly truncate, the costal membrane dilated and a little arched, upper apical veins bifurcate near extremities, radial area very short and broad with a transverse vein before its apex, middle longitudinal vein centrally and obliquely transversely bifurcating; wings moderately long, but narrower than tegmina.

A. *Wings spotted with black.*

1868. **Rhotana fuscofasciata**, sp. n.

Body and legs very pale tawny-yellow, above more or less cretaceously tomentose, apical area of abdomen beneath infuscate; eyes piceous-brown; tegmina subhyaline, talc-like, with iridescent lustre, the venation flavescent, becoming pale fuscous towards apex; three large irregularly shaped spots in costal membrane, some varied suffusions on basal half, and a curved and waved

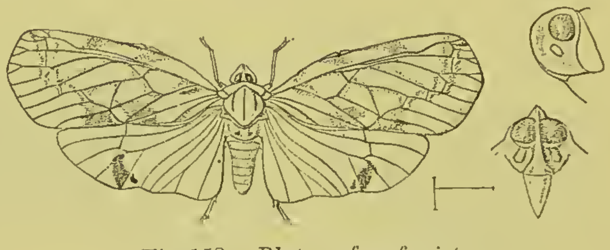

Fig. 152.—*Rhotana fuscofasciata.*

fascia extending from apex to posterior margin at about two-thirds from base, very pale fuscous; upper apical veins sanguineous; wings hyaline, with a large and small black spot placed close together near middle of posterior margin; a very slight and subobsolete pale fuscous suffusion on disk.

Length excl. tegm. $3\frac{1}{2}$; exp. tegm. 14 millim.

Hab. Ceylon; Maskeliya (*Green*).

1869. **Rhotana trimaculata**, sp. n.

Body and legs pale ochraceous, mesonotum (excluding the carinations) infuscate; tegmina subhyaline, talc-like; costal membrane, basal area continued along posterior margin and connected with

costa at end of radial area and with apex by means of a transverse subapical fascia, flavescent, apical margin slaty-grey; wings pale greyish-brown, three transverse greyish-white spots on anal area and three prominent black spots at apex of anal area posteriorly flavescently margined.

Length excl. tegm. 3½; exp. tegm. 14 millim.

Hab. Ceylon; Calboda (*Green*).

A single specimen of this distinct species has been sent me by my very helpful friend Mr. E. E. Green, to whom the elucidation of this entomological fauna is so much indebted. Minute structural characters, such as appertain to species, in these delicate and fragile insects are scarcely to be described without the examination of a series of specimens.

B. *Wings unspotted.*

1870. **Rhotana vitriceps**, *Stål* (Genestia), *Öfv. Vet.-Ak. Förh.* 1858, p. 450; *Melich. Hom. Faun. Ceylon*, p. 62, t. iii, f. 9, *a* (1903).

"White, mesonotum (excluding carinæ) and veins to tegmina fuscous, areolæ to veins moderately infuscate; costa medially whitely farinose." (*Stål.*)

Length, ♂, 3; exp. tegm. 12 millim.

Hab. Ceylon (*fide Stål*).

I have not seen this species, and have given Stål's description. Melichar's figure hardly conforms to this diagnosis, and it seems that either one or the other of these authors has been a little inexact.

1871. **Rhotana iridipennis**, *Melich. Hom. Faun. Ceylon*, p. 62 (1903).

"Similar to *R. vitriceps*, Stål; body pale reddish; eyes brown; tegmina hyaline, glassy, strongly rainbow-like, iridescent, nervures yellow to reddish-yellow, in places dark yellow, transverse nervures faintly margined with brownish, the veins and margins are dull so that they strongly project from the iridescent cells; apical margin extremely finely margined with red; abdomen and legs reddish-yellow." (*Melichar.*)

Length, "♀, 5 millim."

Hab. Ceylon (*Nietner*, *Berlin Mus.*).

I only know this species from the above description.

1872. **Rhotana albata**, *Melich. Hom. Faun. Ceylon*, p. 62 (1903).

"Body white; mesonotum slightly yellowish; tegmina milky-white with yellowish-white veins, transverse veins broad, faintly margined with brownish, but the margins separated from the yellowish transverse veins by a pale zone on both sides, apical marginal vein blood-red; abdomen and legs yellowish-white."

"Larger than *R. vitriceps*, Stål, and to be recognized by the milky-white tegmina." (*Melichar.*)

Length, "♂, 7 to 7½ millim.

Hab. Ceylon; Pattipola (*Budapest Mus.*).

I have not seen this species.

1873. **Rhotana venosa**, sp. n.

Body and legs very pale tawny-yellow, the tibiæ slightly infuscate; coxæ with small fuscous spots; mesonotum moderately rufous; eyes piceous; tegmina obscure hyaline with a slight tawny tint, the veins tawny-yellow, but becoming bright red on the apical area and beneath the apical half of the costal membrane; wings obscure hyaline with the veins yellowish-brown; both wings and tegmina exhibit much iridescent lustre.

Length excl. tegm. 3½; exp. tegm. 13 millim.

Hab. Tenasserim: Myitta (*Doherty*).

The late Mr. Doherty sent me two specimens of this well-marked species.

Genus **VINATA**, n. nom.

Erana, *Walk. J. Linn. Soc., Zool.* i, p. 151 (1857); *Stål, Öfv. Vet.-Ak. Förh.* 1858, p. 449; *Melich. Hom. Faun. Ceylon*, p. 60 (1903) (nom. præocc. Aves).

Type, *V. operosa*, Walk., from Borneo.

Distribution. Oriental and Malayan Regions.

Head a little produced in front of eyes; vertex nearly as broad as long, subparallel, its posterior margin angularly sinuated, medially carinate, its lateral margins raised and carinate; face strongly reclinated, distinctly ampliated posteriorly, medially carinate, the carina obsolete towards apex, the lateral margins elevated; clypeus triangular, its margins subreflexed; eyes moderate in size, beneath subsinuate; ocelli two; antennæ long, first and second joints incrassated, subdepressed, cylindrical, basal joint short, second longest; pronotum nearly twice broader than head, tricarinate, the carinæ continued in the mesonotum, which is nearly twice as long as the pronotum; tegmina moderately elongate, their apices rounded, the longitudinal veins elevated, apically furcate, and with two series of transverse veins on apical area; wings nearly as long as tegmina; legs of moderate length.

1874. **Vinata nigricornis**, *Stål* (Erana), *Öfv. Vet.-Ak. Förh.* 1858, p. 449; *Melich. Hom. Faun. Ceylon*, p. 60 (1903).

Piceous-brown; body beneath, legs, carinæ to head, pro- and mesonota, and a raised undulating transverse line on each anterior lateral area of mesonotum testaceously flavescent; anterior disk of face fusco-testaceous; tegmina sordidly testaceously flavescent,

the longitudinal veins minutely spotted with fuscous, numerous oblique narrow fuscous fasciæ, the apical and subapical cellular

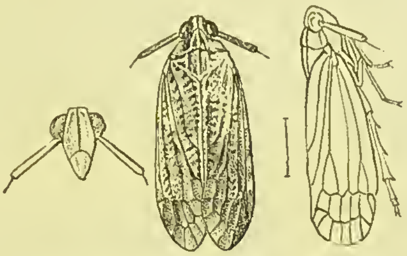

Fig. 153.—*Vinata nigricornis.*

areas mostly fuscous, the costal membrane prominently, alternately, obliquely flavescent and fuscous; wings fuscous; legs and antennæ piceous.

Length excl. tegm. 5; exp. tegm. 13 millim.

Hab. Ceylon; Kandy (*Green*).

1875. **Vinata nivosa**, sp. n.

Body castaneous-brown, legs very much paler; margins and carinations to vertex of head and pronotum ochraceous; antennæ piceous-brown; tegmina umber-brown, with numerous short white oblique striæ, these are particularly distinct and somewhat wide apart on costal membrane; stigma orange-yellow, extreme apical area more fuliginous in hue, the veins yellowish, and practically without the white striæ, but having on its anterior margin, just beyond the stigma, about three ochraceous spots, beneath which is a dark fuscous streak; wings (imperfectly seen) dark fuliginous with their apices very pale fuliginous; posterior tibiæ with two spines, a very short one near base and a longer one near middle.

Length excl. tegm. $4\frac{1}{2}$; exp. tegm. 12 millim.

Hab. Assam (*Brit. Mus.*).

Genus DEVADANDA, nov.

Type, *D. pectinata*, Dist.

Distribution. Tenasserim.

Head (including eyes) much narrower than pronotum, longly and broadly laminately produced in front of eyes; vertex very narrow with its lateral margins strongly ridged, slightly broadened apically and triangularly widened between the eyes, apically convexly continued to face, which is similar in structure to vertex; antennæ inserted some distance beneath the eyes, long and of aberrant structure, first and second joints short and globose, remaining joints prominently produced and bearing very long pectinations;

pronotum short with a strong central carination and posteriorly profoundly angularly emarginate; mesonotum obsoletely tricarinate; legs moderately short and slender; tegmina somewhat narrow, apically widened, the longitudinal veins bifurcate, a few transverse veins a little beyond middle, and a curved transverse series of transverse veins a little before apical margin, which are discally globosely thickened and delimitate some large and prominent apical veins.

1876. **Devadanda pectinata**, sp. n.

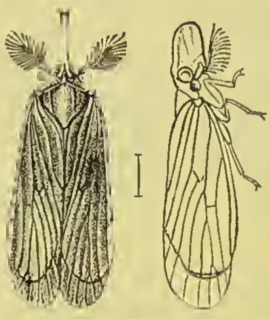

Fig. 154.
Devadanda pectinata.

Head with the broadly laminate areas brownish-grey, the vertex and face orange-red; pronotum and mesonotum piceous, the marginal ridges of the first and a broad central fascia to the latter orange-yellow; legs orange-yellow, the femora brownish; antennæ piceous-brown; tegmina piceous-brown, narrow basal area and veins on apical area purplish-red, oblique veins on posterior half of costal area orange-red, the subapical cellular areas somewhat paler fuliginous than the remainder of the tegmen.

Length incl. tegm. 5 millim.

Hab. Tenasserim; Myitta (*Doherty*).

1877. Gen.? **crenatonervosa**, *Motsch.* (Derbe?) *Bull. Soc. Nat. Mosc.* xxxvi (3) p. 113, t. ii, f. 25 (1863); *Kirby, J. Linn. Soc., Zool.* xxiv, p. 142 (1891).

"Elongate, compressed, carinate, nigro-piceous; vertex of head, central area of mesonotum, and legs palely brownish-testaceous; tegmina strongly fuliginous sublucid; mesonotum with the lateral carinæ somewhat silvery-white; tegmina with the veins piceous and crenulately elevated; head transverse, posteriorly profoundly excavate, anteriorly abruptly, concavely truncate; vertex quadrangular, tricarinate; eyes oblong, convex, beneath moderately sinuate; antennæ with the first joint globose; thorax transverse, quadrangulate, tricarinate, anterior margin somewhat narrowly whitish." (*Motschoulsky.*)

"Length $2\frac{1}{2}$ lin.; lat. tegm. $\frac{3}{5}$ lin."

Hab. Ceylon; Mts. of Nura-Ellia (*fide Motschoulsky*).

I can only call attention to this species by giving the salient points of Motschoulsky's description; I have failed to identify it with any specimen that has passed through my hands; the figure given is only helpful, certainly not satisfactory.

Subfamily VIII. LOPHOPINÆ.

Lophopida, *Stål, Hem. Afr.* iv, p. 130 (1866).
Lophopina, *Atkins. J. A. S. Beng.* lv, p. 42 (1886).
Lophopidæ, *Melich. Hom. Faun. Ceylon*, p. 11 (1903).

Head narrower than pronotum; rostrum short, stout, with the apical joint short; pronotum usually truncate at base, as described by Stål, but sometimes concavely sinuate or angularly emarginate, carinate or somewhat tubercular on disk; basal joint of posterior tarsi robust and moderately short.

I take the most distinguishing character of this subfamily to be the robust or incrassate basal joint of the posterior tarsi, and it apparently contains two sections, denoted by the more or less dilated anterior tibiæ, and the reverse. Stål's characters are rather too restrictive.

Synopsis of Genera.

A. Anterior tibiæ more or less prominently dilated.
  a. Vertex of head prominently produced in front of eyes.
    a. Anterior tibiæ foliaceously ampliate . ELASMOSCELIS, p. 318.
    b. Anterior tibiæ prominently, but not foliaceously, ampliate.
      a'. Tegmina about twice as long as broad .... PITAMBARA, p. 319.
      b'. Tegmina nearly three times longer than broad.
        a². Base of face appearing above and in front of apex of vertex...... CORETHRURA, p. 321.
        b². Base of face not appearing in front of apex of vertex........ BISMA, p. 322.
  b. Vertex of head not or only very slightly produced in front of eyes .... LACUSA, p. 323.
B. Anterior tibiæ not or only very slightly dilated.
  a. Base of face appearing in front of apex of vertex .... SERIDA, p. 324.
  b. Base of face not appearing in front of apex of vertex.
    a. Vertex of head longer than broad.
      a'. Vertex of head very longly porrect, forming a cephalic process about as long as the abdomen .... ZAMILA, p. 326.
      b'. Vertex of head not porrect, only a little longer than pronotum.
        a². Face with its lateral margins laminately convexly produced ...... BRIXIOIDES, p. 327.
        b². Face with its lateral margins carinate, but not laminately convexly produced .... JIVATMA, p. 328.
    b. Vertex of head about as broad or broader than long.

a'. Tegmina normal, smooth, not subcoriaceous.
  a². Pronotum posteriorly obtusely emarginate .... KUSUMA, p. 329.
  b². Pronotum posteriorly strongly angularly emarginate .... VARMA, p. 330.
b'. Tegmina subcoriaceous .... PADANDA, p. 331.

Genus ELASMOSCELIS.

Elasmoscelis, *Spin. Ann. Soc. Ent. Fr.* viii, p. 388 (1839); *Stål, Hem. Afr.* iv, p. 200 (1866); *Melich. Hom. Faun. Ceylon*, p. 64 (1903).

Type, *E. cimicoides*, Spin., an Ethiopian species.

Distribution. Ethiopian and Oriental Regions.

Head (including eyes) much narrower than pronotum; vertex moderately produced in front of eyes, narrow, its lateral margins laminately elevated, centrally divergent or excavate at apex; face much longer than broad, ampliated posteriorly, its lateral margins (except on posterior area) laminately dilated and with two carinations on each of their under surfaces; clypeus tricarinate; eyes beneath moderately sinuate; antennæ short and situate just beneath eyes; legs of moderate length, the anterior tibiæ strongly foliaceously dilated, the posterior tibiæ with three spines, the posterior tarsi with the basal joint incrassate; pronotum short, medially tuberculously carinate; mesonotum obsoletely tricarinate; tegmina moderately broad, their anterior and posterior margins subparallel, basal longitudinal veins strongly bifurcating posteriorly, the apical area containing many longitudinal veins, costal membrane broad, indistinctly transversely veined.

1878. **Elasmoscelis platypoda**, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 148, t. vi, f. 3 (1891); *Melich. Hom. Faun. Ceylon*, p. 64, t. ii, f. 3 *a*, *b* (1903).

Head with the vertex very pale ochraceous with some oblique

Fig. 155.—*Elasmoscelis platypoda.*

transverse black lines, eyes brown; pronotum black with a transverse testaceous fascia on each side; mesonotum black, its central

posterior margin testaceous; abdomen above piceous-brown, its base, narrow segmental margins, and a broader apical fascia ochraceous; face with its anterior area ochraceous, its posterior area black, the latter with some yellowish spots; clypeus black, its central carination testaceous and with a yellow spot on each side; body beneath piceous, the meso- and metasterna ochraceous; anterior and intermediate legs piceous spotted with ochraceous, posterior legs ochraceous spotted with piceous; tegmina piceous-brown, oblique transverse fasciæ to costal area, small spots on posterior margin, an elongate and a smaller spot on apical margin, and a discal spot before middle greyish-white; wings fuliginous; anterior tibiæ strongly foliaceously dilated.

Length excl. tegm. 4; exp. tegm. 13 millim.

Hab. Ceylon (*Green*).

Genus PITAMBARA, nov.

Type, *P. radians*, Kirby.

Distribution. Oriental Region.

Head (including eyes) narrower than pronotum; vertex moderately produced in front of eyes, moderately broad, its lateral margins a little laminately elevated, its disk somewhat concave; face much longer than broad, strongly angularly ampliated posteriorly, its lateral margins (except on posterior area) laminately dilated, and with two carinæ on each of their under surfaces; clypeus tricarinate; eyes beneath slightly sinuate; legs of moderate length, the anterior tibiæ moderately, not foliaceously dilated, the posterior tibiæ somewhat dilated with a single spine, the posterior tarsi with the basal joint incrassate; pronotum and mesonotum as in *Elasmoscelis*; tegmina somewhat short and broad, costal membrane broad (excluding base), distinctly obliquely transversely veined.

Distinguished from *Elasmoscelis* by the broader vertex to head, the more angularly posteriorly ampliated face, the much broader tegmina, and the moderately but not foliaceously dilated anterior tibiæ.

1879. **Pitambara radians**, *Kirby* (Elasmoscelis ?), *J. Linn. Soc., Zool.* xxiv, p. 149, t. vi, f. 2 (1891); *Melich.* (Elasmoscelis) *Hom. Faun. Ceylon*, p. 65, t. ii, f. 2, *a* (1903).

Head with the vertex, face, and clypeus ochraceous, eyes brown; pronotum and mesonotum piceous; abdomen piceous, its basal area more or less ochraceous; legs pale ochraceous spotted with piceous; tegmina pale umber-brown on basal area, where it is somewhat thickly marked with greyish-white transverse spots, darker brown on upper apical area, costal and apical marginal areas white, divided by transverse brown fasciæ, the white interspaces narrowest on basal costal area; wings fuliginous; anterior

tibiæ moderately dilated with two piceous annulations; tegmina slightly dilated behind clavus, the costal margin prominently arched at base, its apical margin subtruncate.

Fig. 156.—*Pitambara radians.*

Length excl. tegm. 4; exp. tegm. 13 millim.

Hab. Ceylon; Pundaluoya, Colombo (*Green*).

Found on *Bambusa*. Larva with two long spiral caudal appendages formed by a white waxy secretion (*E. E. Green*).

1880. **Pitambara interrupta**, sp. n.

Head with vertex, face, and clypeus ochraceous, vertex with the lateral margins, an anterior central line, and two central oblique linear spots black; pronotum black, centrally and laterally ochraceous; mesonotum black; abdomen piceous, its base and the segmental margins (narrowly) ochraceous; legs ochraceous, more or less spotted with piceous; tegmina piceous on basal area, more brownish and paler on apical area, where it is crossed by broad transverse irregular piceous fasciæ, spots on basal portion of costal membrane, a large subtriangular spot on middle of costal margin extending to centre of tegmen, and the apical margin greyish-white, in the latter there are two oblique fuscous lines, interrupted and not meeting inwardly; wings fuliginous, their basal areas greyish-white; anterior tibiæ moderately dilated, ochraceous, with two subbasal piceous annulations, posterior tibiæ moderately dilated with a single spine; apical margins of tegmina rounded, at base of costal margin distinctly arched.

Length excl. tegm. 4; exp. tegm. 12 millim.

Hab. Tenasserim; Myitta (*Doherty*).

1881. **Pitambara undulata**, sp. n.

Head with the vertex, face, and clypeus ochraceous, lateral margins and a central abbreviated line to vertex and two central lines to face piceous; pronotum ochraceous with a large piceous spot on each side behind eyes; mesonotum piceous; sternum and legs ochraceous, bases and apices of posterior tibiæ piceous; abdomen beneath piceous, the segmental margins ochraceous;

tegmina piceous-brown, the basal portion of costal membrane and a large discal spot with a small piceous centre ochraceous, a broad apical margin and some transverse costal rays beyond the ochraceous area greyish-white, in the pale apical marginal area there is a transverse, undulated piceous line; wings greyish-white, basal markings and a broad transverse fascia before apex fuscous-brown; anterior tibiæ moderately dilated; posterior tibiæ with a somewhat long submedial spine; posterior femora fuscous-brown with their apices ochraceous.

Length with tegm. 7 millim.

Hab. Burma; Karen Hills (*Doherty*).

Mr. Doherty sent me a single specimen of this very distinct species.

1882. **Pitambara sinuata**, sp. n.

Head with vertex, face, and clypeus ochraceous, vertex with a central and two submarginal black lines; pronotum black, with the lateral areas, posterior margin, and three central fasciæ ochraceous; mesonotum black; body beneath and legs ochraceous, anterior and intermediate legs annulated with fuscous, posterior femora and bases and apices of posterior tibiæ more or less fuscous; tegmina dark piceous-brown, costal membrane ochraceous beyond middle with obliquely transverse piceous lines, apical margin broadly greyish-white containing a sinuated transverse piceous line; wings fuliginous with greyish suffusions; anterior tibiæ moderately dilated; posterior tibiæ with a spine beyond middle.

Length with tegm. 7 millim.

Hab. Tenasserim, Myitta (*Doherty*).

Genus **CORETHRURA**.

Corethrura, *Hope, Tr. Linn. Soc.* xix, p. 135 (1845); *Stål, Hem. Afr.* iv, p. 200 (1866); *Atkins. J. A. S. Beng.* lv, p. 43 (1886).

Type, *C. fuscovaria*, Hope.

Distribution. Oriental Region.

Head (including eyes) considerably narrower than pronotum; vertex somewhat long, its anterior angles prominent, base of face appearing above as a short cephalic process; face long, truncate on each side before anterior prolongation, gradually sinuately ampliate posteriorly, and then obliquely narrowed to clypeus, the lateral margins moderately carinate and with two central longitudinal ridges enclosing a narrow concave space; clypeus with the lateral margins carinate and with a strong central longitudinal ridge; pronotum tricarinate, the lateral carinations curved, meeting anteriorly and forming a convex plate, which is produced between the eyes; mesonotum tricarinate; legs of moderate length, ampliately subfoliaceous on each side, posterior tibiæ with three spines, posterior tarsi with the basal joint incrassate; tegmina

moderately ampliate, their apices broadly rounded, moderately produced behind clavus, costal membrane with oblique transverse veins, the basal three longitudinal veins forked, apical veins numerous and close together; wings slightly wider than tegmina.

1883. **Corethrura fuscovaria**, *Hope, Tr. Linn. Soc.* xix, p. 135, t. xii, f. 60 (1845); *Atkins. J. A. S. Beng.* lv, p. 43 (1886).

Body above fuscous; abdomen apically provided with a subochraceous appendage, which is sometimes longer than the whole body; carinations to the pro- and mesonota distinctly paler in hue; body beneath and legs pale brownish-ochraceous; pronotum

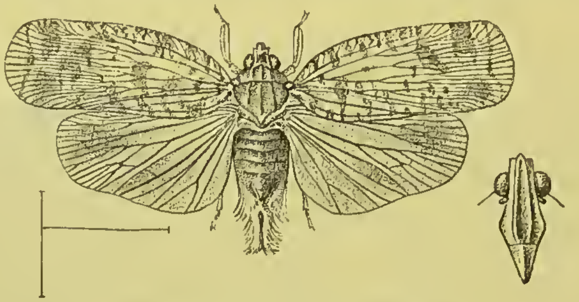

Fig. 157.—*Corethrura fuscovaria.*

with the lateral areas somewhat greyishly pubescent with two or three fuscous spots; tegmina pale dull brownish-ochraceous with scattered greyish pubescence, about three distinct fuscous spots in costal membrane, some darker brownish-ochraceous discal spots beneath costal membrane, and various suffusions of the same colour on apical area, one before apical margin irregularly lineate; wings fuliginous, a little darker on apical and anal areas.

Length excl. tegm. 12; exp. tegm. 30 millim.*

Hab. Sylhet (*fide Hope*). Burma; Ruby Mines (*Doherty*).—Malay Peninsula; Perak (*Coll. Dist.*).

Genus **BISMA**, nov.

Type, *B. greeni*, Dist.

Distribution. Ceylon.

Head narrower than pronotum; vertex long, narrow, projecting beyond eyes, strongly ridged on each side, its disk concave; face very long, somewhat narrow, widened posteriorly, strongly ridged on each side, centrally concave; clypeus centrally and medially finely carinate; pronotum centrally tricarinate, the lateral carinæ converging and uniting anteriorly; mesonotum tricarinate; legs

* Atkinson, *supra*, gives the dimensions as respectively 19 and 58 to 59 millim., which is evidently an error.

moderately short and robust, the anterior and intermediate femora and tibiæ compressed and dilated on each side, posterior tibiæ thickened and armed with two strong spines; posterior tarsi with the basal joint much thickened; tegmina long, their apices angularly rounded, costal margins slightly sinuate beyond middle, basal longitudinal veins forked at their apices, where there are three short contiguous series of transverse veins, costal membrane with oblique veins, and a number of transverse veins on apical area; wings broader than tegmina.

1884. **Bisma greeni**, sp. n.

Body above castaneous-brown; lateral ridges to vertex of head, central carinate areas to pro- and mesonota, and abdominal lateral and segmental margins ochraceous; face beneath dull castaneous,

Fig. 158.—*Bisma greeni.*

the marginal areas spotted with ochraceous; body beneath and legs castaneous, the legs more or less spotted and annulated with ochraceous, posterior tibiæ ochraceous with their apices and the bases of the spines piceous; tegmina with about basal half brownish-ochraceous mottled with fuscous, outer half paler and less mottled; a broad curved piceous fascia crossing near middle, and two broad oblique fasciæ on posterior area, which are united on posterior margin, the outermost connected with the apical margin by a short longitudinal fascia; wings pale fuliginous with the apical and posterior margins fuscous.

Length excl. tegm. 9; exp. tegm. 24 millim.

Hab. Ceylon; Kandy (*Green*).

Genus **LACUSA.**

Lacusa, *Stål, Berl. ent. Zeitschr.* vi, p. 309 (1862); *id. Hem. Afr.* iv, p. 199 (1866); *Atkins. J. A. S. Beng.* lv, p. 42 (1886).

Type, *L. fuscofasciata*, Stål.

Distribution. Oriental Region.

Head narrower than the pronotum; vertex rather long, its

margins carinate, and with a fine central ridge which is bifurcate anteriorly; face rather long, a little ampliate posteriorly, the lateral margins carinate, and a sublateral ridge on each side; clypeus centrally and laterally carinate; pronotum truncate at base, rounded anteriorly behind the vertex, tricarinate; mesonotum tricarinate; legs of moderate length, anterior legs strongly dilated, foliaceous, posterior tibiæ trispinose, gradually slightly dilated towards the apex, posterior tarsi with the basal joint very robust; tegmina somewhat ample, anterior and posterior margins parallel, broadly round at apex, costal membrane obliquely transversely veined; wings slightly narrower than tegmina.

1885. **Lacusa fuscofasciata,** *Stål* (Elasmoscelis?), *Öfv. Vet.-Ak. Förh.* 1854, p. 248; *id.* (Lacusa) *Berl. ent. Zeitschr.* vi, p. 309 (1862); *Atkins. J. A. S. Beng.* lv, p. 42 (1886).
Cixius eminens, *Walk. Ins. Saund., Hom.* p. 42 (1858).

Piceous; head, pronotum, mesonotum, and tarsi very pale testaceous, face and mesonotum infuscated; clypeus and anterior legs piceous, the latter speckled with luteous, intermediate and posterior legs luteous, the posterior tibiæ apically piceous; tegmina very pale ochraceous, semi-opaque, the venation sparingly and finely spotted with piceous, costal membrane with some linear

Fig. 159.—*Lacusa fuscofasciata.*

oblique piceous spots, disk crossed by three broad piceous fasciæ, the first oblique before middle, the second and third oppositely oblique and united at posterior margin, apical margin either completely or maculately piceous; wings semihyaline, the apical and posterior margins pale fuscous.

Length excl. tegm. 5 to 5½; exp. tegm. 16 to 16½ millim.

Hab. "Hindostan" (*fide Walker*). Burma; Ruby Mines, Momeit (*Doherty*).

Genus SERIDA.

Serida, *Walk. J. Linn. Soc., Zool.* i, p. 158 (1857).

Type, *S. latens*, Walk.

Distribution. Oriental and Malayan Regions.

Head (including eyes) narrower than pronotum; vertex longly produced in front of eyes, its lateral margins strongly ridged,

centrally obscurely ridged, its anterior lateral angles slightly acute, the base of the face as seen above appears as a further elongation of the vertex, and is there distinctly centrally sulcate; face long, centrally concave, with two strong central longitudinal carinations and the lateral margins concavely sinuate, reflexed and strongly carinate to within a short distance of the apex; clypeus small, the margins moderately and the central disk faintly carinate; pronotum short, anteriorly centrally conically produced, where it is tricarinate, its posterior margin concave; mesonotum large, tricarinate; legs of moderate length, posterior tarsi with the basal joint strongly incrassate; tegmina moderately broad, the costal margin slightly convex, behind the clavus distinctly ampliated, apical margin truncately rounded, costal membrane broad, with many slightly oblique transverse veins, basal longitudinal veins strongly bifurcating beyond middle, the apical area being thus provided with a somewhat close series of longitudinal veins; wings moderately broad, with a double series of transverse veins on apical area.

1886. **Serida latens**, *Walk. J. Linn. Soc., Zool.* i, p. 158 (1857).
Lerida fervens, *Walk. tom. cit.* pl. vii, f. 8*.

Body and legs brownish-ochraceous, the carinations to head, pronotum and mesonotum, and the abdomen above (excluding the posterior segmental margins and some small discal spots) paler ochraceous; tegmina pale and somewhat bronzy-brown, the

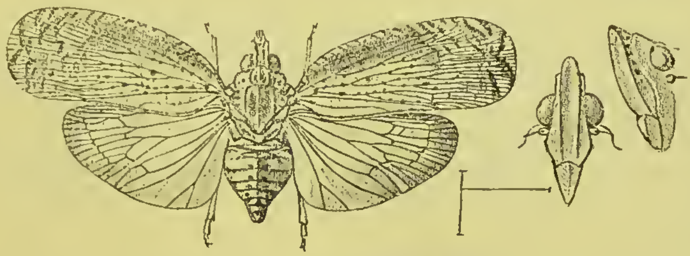

Fig. 160.—*Serida latens.*

venation on basal half minutely spotted with fuscous, costal area with oblique fuscous lines, an angulated linear fascia on apical margin preceded by several broken transverse linear fasciæ, which are also fuscous; wings pale fuliginous, somewhat shining, the apical area included by the transverse veins distinctly darker in hue.

Length excl. tegm. 7; exp. tegm. 20 millim.

Hab. Tenasserim; Myitta (*Doherty*).—Borneo (*Brit. Mus.*).

* Walker has figured his *S. latens* under the name of *Lerida fervens.*

Genus ZAMILA.

Zamila, *Walk. Journ. Ent.* i, p. 304 (1862).
Microchoria, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 147 (1891); *Melich. Hom. Faun. Ceylon*, p. 63 (1903).

Type, *Z. lycoides*, Walk. *
Distribution. Oriental Region.

Head long, produced in a porrect cephalic process, tricarinate above, laterally somewhat broadly flattened and very obsoletely upturned at apex, each lateral area marked with a curved carinate line extending from clypeus to about middle, where it is continued truncately across the upper surface and above which it is only centrally carinate; face broadly longitudinally excavate between two lateral somewhat laminate ridges; clypeus with central and marginal ridges, the latter being somewhat obsolete; antennæ placed beneath eyes, the second joint strongly subglobose; pronotum somewhat narrow, centrally tricarinate, its anterior margin concavely excavate on each side behind eyes, lateral margins obliquely straight, lateral angles shortly subacute; mesonotum tricarinate; legs moderately short, posterior tibiæ with two spines, posterior tarsi with the basal joint long and subglobose; tegmina long, somewhat narrow, their apices truncately rounded, costal membrane with numerous transverse veins, apical area transversely veined; wings scarcely or only slightly wider than tegmina.

1887. **Zamila lycoides**, *Walk. Journ. Ent.* i, p. 305, t. xv, f. 2. (1862).

Shining brownish-ochraceous; cephalic process above castaneous; body beneath and legs a little paler; tegmina brownish-ochraceous, the costal membrane and apical area infuscate, in some specimens the costal membrane concolorous, some minute brown spots varying in number on anterior disk; wings brownish-ochraceous, the apical area infuscate or concolorous with numerous minute brown spots; posterior femora with a prominent spine near middle.

Length incl. tegm. 14½ millim.

Hab. "India" (*Brit. Mus.*).—Siam (*Brit. Mus.*).

The Siamese type from the Pascoe Collection is now in the National Collection, which also contains another example labelled "India"; both are in an unset condition.

1888. **Zamila aberrans**, *Kirby* (Microchoria), *J. Linn. Soc., Zool.* xxiv, p. 148, t. v, f. 10 (1891); *Melich. Hom. Faun. Ceylon*, p. 63, t. ii, f. 13, *a* (1903).

Body and legs ochraceous; lateral areas and under surface of cephalic process much paler; tegmina very pale tawny-yellow,

* In his description of this species, Walker has referred to his fig. 3 instead of fig. 2 of pl. xv. *supra*.

opaque, apical area speckled with minute fuscous spots and with two short transverse fuscous lines near apical margin; wings

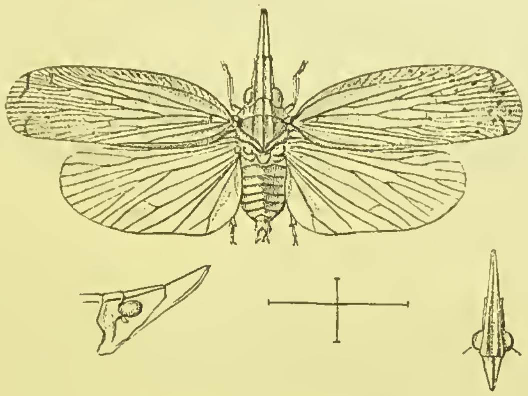

Fig. 161.—*Zamila aberrans.*

greyish, slightly suffused with very pale fuliginous; disk of mesonotum between the carinæ brown: cephalic process above the medial transverse ridge with the central longitudinal carination very distinct.

Length excl. tegm. 7½; exp. tegm. 16 millim.

Hab. Ceylon, Pundaluoya (*Green*).

1889. **Zamila perpusilla**, *Walk.* (Pyrops) *List Hom.* ii. p. 269 (1851).

Body and legs ochraceous, paler beneath than above; tegmina yellowish-white, semi-opaque, the apical area and outer claval margin speckled with minute black spots; wings pale hyaline; the dorsal ridge to cephalic process is much less prominent in front of the central transverse ridge than behind it.

Length excl. tegm. 9; exp. tegm. 18 millim.

Hab. North Bengal (*Miss Campbell, Brit. Mus.*).

Genus BRIXIOIDES.

Brixioides, *Kirby. J. Linn. Soc., Zool.* xxiv, p. 139 (1891); *Melich. Hom. Faun. Ceylon*, p. 35 (1903).

Type, *B. carinatus*, Kirby.

Distribution. Ceylon.

Head narrower than the pronotum, antennæ inserted below the hinder part of the eyes, ocelli undetected; vertex with its lateral margins a little laminately raised at inner margin of each eye, its disk foveate and centrally carinate; face with its lateral margins laminately convexly produced, long, narrow, a little wider posteriorly; pronotum centrally tricarinate, its lateral angles somewhat acute; mesonotum tricarinate; legs moderately compressed, posterior tibiæ with a prominent medial spine and widened

posteriorly; posterior tarsi with the basal joint strongly globose; tegmina subopaque, the apical margin oblique, costal membrane with numerous transverse carinate lines, apical area transversely veined; wings a little broader than tegmina, subhyaline, some transverse veins on their apical areas.

Mr. Kirby, in describing this genus, stated that he considered it of doubtful position, though he placed it in the *Cixiinæ*. Melichar (*supra*) has also placed it in that subfamily. The swollen first joint of the posterior tarsi was apparently overlooked, or its proper location would have been detected.

1890. **Brixioides carinatus**, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 140, t. v, f. 9 (1891); *Melich. Hom. Faun. Ceylon*, p. 35 (1903).

Head and pronotum ochraceous; head with a broad black central fascia with a medial ochraceous line; pronotum with the area between the three central ochraceous carinations black, the lateral areas alternately and linearly black and ochraceous; mesonotum with the area between the three central ochraceous carinations purplish-brown, its lateral area alternately ochraceous and purplish-brown; abdomen above piceous-brown, with two longitudinal pale fasciæ and the segmental margins ochraceous;

Fig. 162.—*Brixioides carinatus.*

body beneath and legs stramineous, much linearly marked and spotted with black, margins of face and anterior femora obliquely lined, two narrow oblique fasciæ on each side of sternum, anterior tibiæ and remaining legs spotted or annulated, black; tegmina pale ochraceous, semi-opaque, on basal half and below radial area the veins much spotted with brown and with two more prominent piceous spots, oblique brown narrow fasciæ crossing costal membrane, three of them near apex continued to near posterior angle, where there are a few small piceous spots; wings subhyaline, slightly palely infuscate on disk.

Length excl. tegm. $4\frac{1}{2}$; exp. tegm. $13\frac{1}{2}$ millim.

Hab. Ceylon; Pundalnoya (*Green*).

Genus JIVATMA, nov.

Type, *J. metallica*, Dist.

Distribution. Oriental and Malayan Regions.

Head (including eyes) a little narrower than pronotum; vertex moderately produced in front of eyes, centrally and laterally finely

ridged, face not projecting beyond it as in *Serida*; face longer than broad, finely centrally and sublaterally ridged, the sublateral ridges rounded and meeting anteriorly, the lateral margins a little reflexed and strongly carinate; clypeus shorter than face, obscurely and laterally carinate; pronotum narrow, tricarinate, anteriorly a little centrally conically produced; mesonotum large, tricarinate; legs of moderate length, posterior tarsi with the basal joint incrassate; tegmina moderately broad in structure and venation generally as in *Serida*, wings differing from that genus by the absence of the double series of transverse veins to the apical area.

1891. **Jivatma metallica**, sp. n.

Body and legs brownish-ochraceous; the carinations to head and thorax and the lateral and segmental margins to abdomen above paler ochraceous; mesonotum with two central longitudinal piceous fasciæ; tegmina pale greyish-hyaline, the claval and apical

Fig. 163.—*Jivatma metallica.*

areas dull ochraceous with some irregular narrow pale fuscous striæ, several transverse piceous fasciæ before apical margin, one of which is moderately broad, the basal longitudinal venation with minute fuscous spots; wings greyish hyaline, the venation and the posterior and apical areas dark fuliginous.

Length excl. tegm. 5; exp. tegm. 16 millim.

Hab. Tenasserim, Myitta (*Doherty*).

Genus **KUSUMA**, nov.

Type, *K. carinata*, Dist.

Distribution. British India.

Head (including eyes) a little narrower than pronotum; vertex broad, the anterior and lateral margins upwardly carinate, its disk concave, with an obsolete central longitudinal ridge; face longer than broad, a little ampliated anteriorly, centrally and marginally ridged, its anterior margin moderately convex, its posterior margin subtruncate; clypeus subtriangular, broadly laterally and centrally

ridged; antennæ inserted beneath eyes, second joint strongly globose; pronotum about as broad as head, very strongly tricarinate, its anterior margin subtruncate, its lateral angles moderately obtusely angularly produced; mesonotum tricarinate; legs somewhat short, the posterior tibiæ with two spines, the basal joint of the posterior tarsi strongly incrassate; tegmina somewhat elongate, their apices conically rounded, costal membrane with transverse veins, of the three discal longitudinal veins the upper and lower are bifurcate, two series of transverse veins, one before apical area irregularly transverse, the other on apical area strongly oblique; wings slightly wider than tegmina.

1892. **Kusuma carinata**, sp. n.

Body and legs ochraceous; tegmina creamy, subopaque; base, an irregularly transverse fascia beyond middle, and an oblique narrow fascia on apical area pale fuscous-brown; wings hyaline;

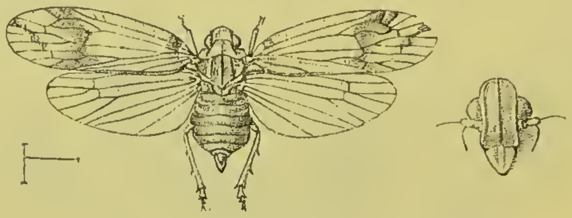

Fig. 164.—*Kusuma carinata.*

carinations to pro- and mesonota very pronounced and prominent; spines to posterior tibiæ very distinct; head with the vertex distinctly concave; disk of pronotum between the ridges concave.

Length excl. tegm. 4 to $4\frac{1}{2}$; exp. tegm. 13 millim.

Hab. "India" and Bombay (*Brit. Mus.*).

Two specimens are contained in the National Collection, one probably from North India, the second properly localized as from Bombay.

Genus VARMA.

Type, *V. fervens*, Walk., from Borneo.

Distribution. Oriental and Malayan Regions.

Head a little narrower than pronotum; vertex narrow, truncately rounded in front, the margin upwardly acutely reflected; face considerably longer than broad, a little ampliated posteriorly, centrally and laterally robustly carinate, the lateral areas moderately oblique; clypeus centrally ridged, its lateral margins simple; pronotum very narrow, laterally oblique, posteriorly very strongly angularly emarginate, centrally and marginally strongly ridged; mesonotum tricarinate and longer than pronotum and vertex

together; legs moderately short, posterior tibiæ with two strong spines, posterior tarsi with the basal joint perceptibly thickened; rostrum short, robust, apical joint short; tegmina somewhat broad, apically truncately rounded, of the three basal longitudinal veins the uppermost and lowermost are bifurcated, crossed by an almost straight series of transverse veins beyond middle, and by a similar outwardly convex series a little before apical margin, costal membrane with oblique transverse veins; wings a little narrower than tegmina.

1893. **Varma tridens**, sp. n.

Body and legs brownish-ochraceous; tegmina flavescent, a costal suffusion before apex, and three contiguous apical marginal fasciæ fuscous; wings fuliginous, a little paler at basal area; abdominal segmental margins a little paler in hue; carinations to

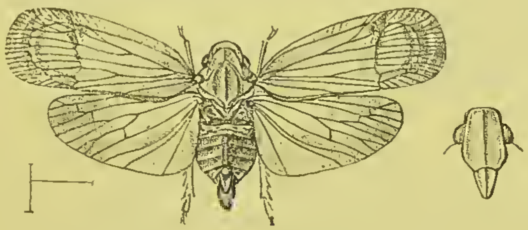

Fig. 165.—*Varma tridens.*

head, pronotum, and mesonotum concolorous or very slightly paler than the discal coloration; posterior tibiæ pale ochraceous, the spines very distinct; carinations to face and clypeus concolorous.

Length excl. tegm. 5; exp. tegm. 14 millim.

Hab. Ceylon, Armarapura, Kandy (*Green*).

Genus PADANDA.

Type, *P. atkinsoni*, Dist.

Distribution. British India.

Head (with eyes) about as wide as pronotum, the vertex shorter than pronotum, subconically rounded, centrally and marginally carinate; face about twice as long as clypeus, its margins parallel, centrally and sublaterally carinate, the sublateral carinæ anteriorly curved inward and fused, the lateral margins also carinate; clypeus tricarinate; antennæ inserted considerably below eyes, the second joint short, globose; pronotum slightly longer than head, strongly laterally and medially carinate, its anterior margin elongately convex, its posterior margin angularly emarginate; mesonotum longer than pronotum, strongly tricarinate, the lateral carinations upwardly curved inward but not quite meeting; legs of moderate length, the posterior tibiæ with four spines, one very near base;

posterior tarsi with the basal joint short and incrassate; tegmin subcoriaceous, subvertically placed, apical areas with many transverse veins, the longitudinal veins distinctly raised.

1894. **Padanda atkinsoni**, sp. n.

Fig. 166.—*Padanda atkinsoni.*

Head, face, thorax and tegmina pale ochraceous; body beneath and legs brownish-ochraceous; pronotum with a small impressed fuscous spot on each side of the central carination: tegmina with the reticular venation on the apical areas in places castaneous, the costal membrane moderately broad, the longitudinal veins distinctly yellow; apices of the anterior and intermediate tibiæ and apices of the tarsi piceous.

Length incl. tegm. 7 millim.

Hab. Sikhim; Mungphu (*Atkinson Coll.*, *Brit. Mus.*).

Subfamily IX. ISSINÆ.

Issida, *Stål, Hem. Afr.* iv, pp. 130 & 202 (1866).
Issina, *Stål, Öfv. Vet.-Ak. Förh.* (1870) p. 754; *Atkins. J. A. S. Beng.* lv, p. 43 (1886).
Issidæ, *Melich. Hom. Faun. Ceylon*, p. 72 (1903).

Head not or only a little narrower than the pronotum; clypeus generally convex, its lateral margins seldom ridged; pronotum truncate at base, sometimes but rarely broadly roundly sinuate, either without a median carination or with only an obsolete one; mesonotum short, rarely twice longer than pronotum; tegmina coriaceous or subcoriaceous, rarely vitreous, seldom flat, usually more or less convex, sometimes very much abbreviated; basal joint of posterior tarsi short or of moderate length, very rarely elongate.

In many respects the *Issinæ* are closely allied to the *Eurybrachydinæ*, some authorities placing the two in sequence to one another, and others treating them both as representing one subfamily. Although I have not followed either of these courses, there is very much to be said in their favour, but at present there is a divergence of view as to the divisions of the Fulgoridæ and their natural sequence, while the question is without sufficient data for final decision.

Synopsis of Genera.

A. Anterior legs foliaceously dilated.
  a. Tegmina considerably shorter than abdomen. CALISCELIS, p. 334.
  b. Tegmina longer than abdomen .... AUGILA, p. 335.

B. Anterior legs normal, not foliaceously dilated.

a. Tegmina deflected, in an obliquo or vertical position to the body, not convex; posterior tibiæ with one or two spines.

α. Tegmina narrowed and rounded at apices.

a'. Head not porrectly produced in front of eyes.

a^2. Clypeus transversely striate.

a^3. Face longer than broad, centrally and sublaterally carinate ...... TATVA, p. 336.

b^3. Face as broad as long, only centrally carinate .... BRAHMALOKA, [p. 337.

b^2. Clypeus not transversely striate.

a^3. Face centrally carinate.

a^4. Vertex angularly produced in front of eyes .... JAGANNATA, p. 338.

b^4. Vertex not angularly produced in front of eyes .... TETRICA, p. 339.

b^3. Face centrally and laterally carinate.

a^4. Sublateral carinations almost percurrent .... HYSTEROPTERUM, [p. 341.

b^4. Sublateral carinations only commencing at about middle of lateral margins .... SARIMA, p. 342.

b'. Head porrectly produced in front of eyes.

a^2. Face centrally carinate, not prominently narrowed anteriorly ...... GIVAKA, p. 344.

b^2. Face non-carinate, prominently narrowed anteriorly .... VISHNULOKA, p. 345

b. Tegmina ampliated and obliquely truncate at apices.

a'. Head not prominently produced in front of eyes.

a^2. Face about as broad as long.

a^3. Face distinctly centrally laminately produced at base........ RADHA, p. 346.

b^3. Face normal, not laminately produced.

a^4. Inner margin of tegmina straight .... DEVAGAMA, p. 347.

b^4. Inner margin of tegmina concavely sinuate, convexly ampliate behind claval area .... NARAYANA, p. 349.

b^2. Face broader than long.

a^3. Inner margin of tegmina straight. SAMANTIGA, p. 351.

b^3. Inner margin of tegmina dilated at claval area .... SIVALOKA, p. 352.

c^2. Face longer than broad .... SUDASINA, p. 353.

b'. Head prominently produced in front of eyes.

a^2. Apex of head broad, strongly notched LUSANDA, p. 345.

b^2. Apex of head narrowed and acute .. TONGA, p. 355.

b. Tegmina convexly oblique, longer than broad; posterior tibiæ with five spines.	
a. Face about half as long again as broad ..	FLAVINA, p. 356.
b. Face twice as long as broad	NILALOHITA, p. 358.
c. Tegmina globose, without a claval suture.	
a. Face distinctly separated from vertex ..	HEMISPHÆRIUS, [p. 359.
b. Face not distinctly separated from vertex but passing gradually into its surface ..	HEMISPHÆROIDES, [p. 364.
d. Tegmina broadly transverse, only moderately oblique.	
a. Head not produced in front of eyes	PTERILIA, p. 365.
b. Head strongly and acutely produced in front of eyes	PTERYGOMA, p. 366.

Genus **CALISCELIS**.

Caliscelis, *Lap. Ann. Soc. Ent. Fr.* ii, p. 251 (1833); *Melich.* (excl. syn.) *Hom. Faun. Ceylon*, p. 72 (1903); *Horv. Ann. Mus. Nat. Hung.* 1904, p. 378.
Mejonosoma, *Costa, Cenni zoologici, Annuar. Zoolog.* 1834, p. 86.
Calliscelis, *Stål, Hem. Afr.* iv, p. 203 (1866).
Caloscelis, *Fieb. Cic. Rev. et Mag. Zool.* 1875, p. 359; *Melich. Cicad. Mitt.-Europ.* p. 35 (1896).

Type, *C. bonellii*, Latr., a Palæarctic species.
Distribution. Palæarctic and Oriental Regions *.

Head (including eyes) about as wide as pronotum; vertex with its margins ridged, and with a transverse ridge between the eyes; face nearly perpendicular, a little rounded towards clypeus, with three longitudinal keels; antennæ inserted before the eyes; rostrum reaching the posterior coxæ; pronotum broader than long, anteriorly rounded, posteriorly concave, sometimes with a slight middle keel; mesonotum acutely triangular, with three faint longitudinal keels, the lateral keels curved; tegmina shorter than abdomen, obliquely truncate posteriorly, clavus fused with corium; anterior femora and tibiæ strongly foliaceously ampliated; posterior tibiæ with a single spine.

1895. **Caliscelis eximia**, *Stål, Berl. ent. Zeitschr.* iii, p. 323 (1859).

Very pale ochraceous; vertex a little produced in front of eyes; pronotum with a medial carination, much shorter than mesonotum.

♂. Face about one-third longer than greatest breadth, medial carination percurrent; costal area of tegmina, a broad lateral

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* Burmeister (Handb. Ent. ii, p. 159, 1835) has included a South-American species in this genus, but Dr. Horváth has stated that it is not congeneric with *Caliscelis*.

fascia on each side of body, and the anterior legs piceous, intermediate and posterior legs more or less mottled with piceous, anterior femora beneath and anterior tibiæ on each side (outwardly more than inwardly) roundly foliaceously ampliated.

Fig. 167.—*Caliscelis eximia*, ♂.

♀. A little larger than male, unicolorous, irrorated with fuscous; face about one-fourth longer than greatest breadth; anterior femora beneath and anterior tibiæ on each side moderately dilated, less so than in male.

Length, ♂ $3\frac{1}{2}$, ♀ 4 millim.

Hab. Ceylon (*Stockholm Mus.*).

I am indebted to Dr. Aurivillius, of Stockholm, for the opportunity of figuring this species.

Genus **AUGILA.**

Augila, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 754.

Type, *A. sulciceps*, Stål, from the Philippines.

Distribution. Oriental and Malayan Regions.

Body elongate, subcompressed, abdomen slender; head (including eyes) a little narrower than pronotum, compressed and porrectly produced in front of eyes, its apex moderately rounded, and from it issues a slender filamentous appendage *, above longitudinally concave; face with the lateral margins strongly broadly ridged; eyes elongate; pronotum truncate at base, anteriorly produced between eyes, obtusely tricarinate; mesonotum nearly twice as long as pronotum, bicarinate; tegmina elongate, narrow, apex obliquely rounded, anterior and posterior margins parallel, radial and upper longitudinal veins united near base, the former shortly furcate at apex, apical area reticulately veined; wings a little wider than tegmina, with a few transverse veins on apical area; anterior legs elongated, the femora and tibiæ foliaceously dilated; posterior tibiæ with a single spine placed beyond middle.

I have followed Stål in placing this strange genus in the *Issinæ*; there appear to be a number of interesting characters that can only be studied and described when material can be spared for dissection.

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* This structural character is neither figured nor described by Stål, and was probably mutilated when he acquired his Philippine type of the genus.

1896. **Augila binghami**, sp. n.

Head, pronotum, and mesonotum black; vertex of head (excluding base and apex) dull greyish, a longitudinal spot at centre of face and a central fascia to clypeus dull greyish; abdomen ochraceous, the lateral margins and apex broadly piceous; anterior legs piceous, apices of the dilated tibiæ ochraceous, intermediate

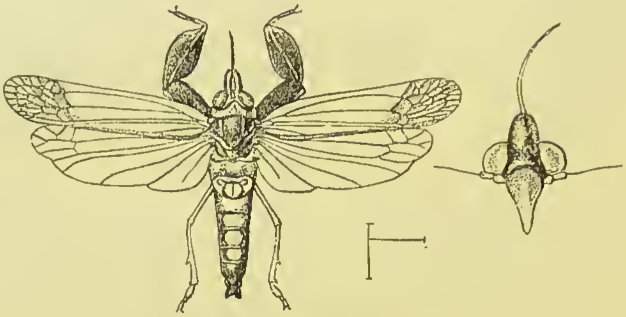

Fig. 168.—*Augila binghami.*

and posterior legs brownish-ochraceous; tegmina and wings hyaline, the veins fuscous, apical area of tegmina and the claval area piceous; at base of abdomen above there are two smooth longitudinal tubercles.

Length excl. tegm. 6; exp. tegm. 13 millim.

Hab. Tenasserim, Ataran Valley (*Bingham*, *Coll. Dist.*).

Genus TATVA, nov.

Type, *T. bufo*, Dist.

Distribution. British India.

Head (including eyes) only very slightly narrower than pronotum; vertex quadrangular, foveate and granulose, its margins strongly ridged, its posterior margin angularly excavate; face longer than broad, a little ampliate posteriorly, granulose, centrally, laterally, and sublaterally carinate, the sublateral carinations united anteriorly and inwardly curved posteriorly; clypeus somewhat short, triangular, finely centrally carinate near its base, and laterally transversely striate; eyes with their posterior margins truncate, antennæ inserted a little beneath them; pronotum narrow, its posterior margin truncate, anteriorly broadly angulate; mesonotum small, triangular; legs of moderate length, posterior tibiæ with two spines; tegmina short, subcoriaceous, broadly arched at base and moderately ampliate behind clavus, narrowed to apex, which is angularly rounded, strongly transversely reticulate on about apical third, obsoletely transversely reticulate on remaining area; wings about or almost as long as tegmina, semihyaline.

1897. **Tatva bufo**, sp. n.

Body and legs pale brownish-ochraceous; vertex of head with two small fuscous spots at base; tegmina obscure talc-like, subcoriaceous, the venation ochraceous, two obscure broken oblique fuscous fasciæ on each tegmen, and some transverse fuscous spots on each claval area; wings semihyaline, very pale fuliginous, the venation fuscous; vertex of head granulose, with a faint central longitudinal carination; face granulose, speckled with pale fuscous; clypeus ochraceous, its lateral areas obliquely striate; apices of tibiæ piceous; tegmina with a number of small cells on apical area; pronotum sparingly palely granulose, its margins strongly ridged and with a faint central longitudinal carination; mesonotum with two short ridges near each anterior angle, between which the colour is dull castaneous, two small spots of the same colour on disk.

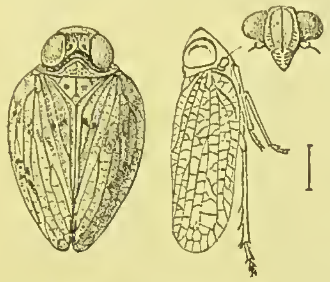

Fig. 169.—*Tatva bufo.*

Length $5\frac{1}{2}$ millim.

Hab. Bombay (*Brit. Mus.*).

Genus BRAHMALOKA, nov.

Type, *B. bowringi*, Dist.

Distribution. Assam.

Head (including eyes) as broad as pronotum; vertex broader than long, truncate anteriorly, moderately concave, its edges carinate; face about as broad as long, centrally straightly finely carinate and submarginally convexly carinate, the lateral margins also slightly ridged, the basal margin truncate, not concave, a little emarginate before clypeus; clypeus laterally transversely obliquely striate; pronotum about as long as mesonotum, anteriorly angularly medially produced, posteriorly truncate, with a central fine longitudinal carination; mesonotum tricarinate; legs short and robust, posterior tibiæ with two spines; tegmina with the margins parallel, not ampliated towards apex, apical margin truncately rounded, longitudinal veins prominent, more or less transversely veined over their whole area, costal area very broad, transversely veined, a series of transverse veins near apex defining an apical marginal area containing a few longitudinal veins.

1898. **Brahmaloka bowringi**, sp. n.

Body, legs, and tegmina brownish-ochraceous; face discally suffused with piceous; the oblique lateral striæ to clypeus castaneous; apex of rostrum piceous; abdomen castaneous-brown

with transverse ochraceous segmental fasciæ, anal appendages

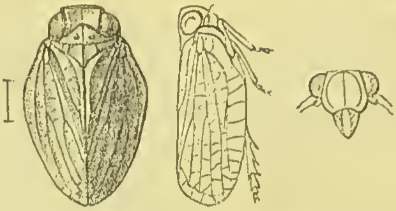

Fig. 170.—*Brahmaloka bowringi.*

ochraceous; posterior tibiæ with two rubust spines; eyes piceous.
Length incl. tegm. 5 millim.
Hab. Assam; Cachar (*Bowring*, *Brit. Mus.*).

Genus **JAGANNATA**, nov.

Type, *J. chelonia*, Dist.
Distribution. British India.

Head (including eyes) about as wide as pronotum; vertex somewhat angularly produced in front of eyes, a little longer than broad, slightly narrowed posteriorly; face about as long as greatest width, very indistinctly and obscurely centrally carinate, its basal margin truncate with the lateral angles slightly acutely prominent, obliquely widened for about two-thirds its length and then obliquely narrowed to clypeus which is directed inward; antennæ short, inserted beneath eyes; pronotum about as long as mesonotum, anteriorly subtriangularly produced, its posterior margin truncate and with a faint central longitudinal carination; legs of moderate length, posterior tibiæ unarmed; tegmina widest and arched near base, narrowed posteriorly, the longitudinal veins bifurcate, the surface covered with indistinct transverse veins, the basal disk slightly globose, but not prominently so as seen from above.

1899. **Jagannata chelonia**, sp. n.

Very pale flavescent with fuscous markings; vertex of head pale flavescent with the anterior margin and anterior lateral angles piceous; eyes fuscous-brown, their basal margins ochraceous: face pale flavescent, anterior area pale fuscous-brown and slightly granulose, the anterior and lateral margins at this area piceous with small prominent tubercles, on posterior disk some pale fuscous-brown suffusions; clypeus piceous, its base pale flavescent; anterior and intermediate

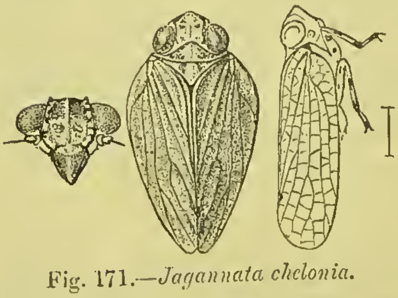

Fig. 171.—*Jagannata chelonia.*

tibiæ distinctly piceously biannulate, the femora much more obscurely so; posterior legs mutilated in type; tegmina pale flavescent with some faint fuscous shadings, one or two very small piceous spots at apical end of posterior margin and a linear series of very obscure fuscous spots on disk, the longitudinal veins distinctly raised.

Length incl. tegm. $5\frac{1}{2}$ millim.

Hab. Tenasserim; Myitta (*Doherty*).

1900. **Jagannata maculata**, sp. n.

Pale creamy-white more or less suffused and spotted with fuscous; vertex of head with a piceous spot on the anterior lateral angles and a small black spot at about middle of lateral margins; eyes very pale fuscous-brown; face with the anterior area very pale fuscous-brown and slightly granulose, some central suffusions of the same colour to posterior disk, and the whole of the anterior and lateral margins spotted with black, most prominently so anteriorly; anterior and intermediate femora and tibiæ obscurely piceously biannulate; pronotum piceously spotted at each lateral area, and with a central somewhat sanguineous carinate line; mesonotum with five large fuscous spots, four on anterior margin and the other one near posterior angle, and with a distinct central sanguineous carinate line; tegmina creamy-white, with a large fuscous patch or irregular spot on the apical area, a smaller patch or spot on claval area, some minute spots of the same colour scattered on basal area, and a series of small but more piceous spots on inner margin.

Length incl. tegm. 6 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Besides the above strong differences in colour and markings this species may be separated from *J. chelonia* by the much less raised longitudinal veins to the tegmina.

Genus TETRICA.

Tetrica, *Stål, Hem. Afr.* iv, p. 208 (1866); *Atkins. J. A. S. Beng.* lv, p. 46 (1886).

Type, *T. fusca*, Stål.

Distribution. Oriental and Malayan Regions.

Body oval or suboblong; head with eyes as broad as pronotum, not prominently produced in front of eyes; vertex transverse, somewhat concave, its margins strongly ridged, with a more or less distinct central carination and with the anterior lateral angles distinctly prominent; face almost equally long as broad, a little ampliated posteriorly, with a central medial ridge sometimes becoming evanescent posteriorly, the lateral margins acute and a little reflexed, lateral margins of the clypeus ridged; pronotum short, anteriorly and triangularly produced, its base truncate, its margins ridged and with a more or less well-developed central

carination; mesonotum about as long as pronotum, somewhat convex; legs moderately short and robust, posterior tibiæ with two spines; tegmina slightly narrowed behind the middle, at apex very obtusely rounded; radial vein forked at base, two lower longitudinal veins forked near middle; wings broad, deeply emarginate at apex*.

I am indebted to Dr. Aurivillius, of Stockholm, for allowing me to see a cotype of this genus, the *T. maculipennis*, Stål, from the Philippines.

1901. **Tetrica fusca**, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 757, note; *Atkins. J. A. S. Beng.* lv, p. 47 (1886).

"♂. Fuscous, subcompressed, legs pallescent; corium and clavus obsoletely palely sprinkled on disk; vertex twice broader than long; face nearly equally long and towards the apex broad, furnished with a single, distinct, obtuse ridge running through it, continued through the clypeus; tegmina somewhat broad, gradually somewhat amplified from base to near middle, thence distinctly narrowed." (*Stål.*)

Length incl. tegm. 5½ millim.

Hab. Burma (*fide Stål*).

I have given Stål's description of this species, for although I possess a specimen from Mergui which I believe is conspecific, I cannot be certain without seeing the type.

1902. **Tetrica bifasciata**, sp. n.

Brownish-ochraceous; face with the anterior and lateral margins very narrowly black, the central carinate line testaceous and with a curved pale fascia on each side before clypeus, which is also pale with its lateral areas darker; legs with paler longitudinal streaks; tegmina brownish-ochraceous with two transverse castaneous fasciæ, between which there is a large pale costal spot, longitudinal veins slightly raised and pale brownish; eyes castaneous.

Length incl. tegm. 5½ millim.

Hab. Tenasserim; Myitta (*Doherty*).

1903. **Tetrica viridimixta**, sp. n.

Brownish-ochraceous with pale virescent suffusions; face mottled with brown, between which there is a triangular pale flavescent spot before clypeus giving the appearance of the posterior margin being triangularly emarginate; clypeus laterally piceous; anterior and intermediate femora and tibiæ obscurely

* I am extremely doubtful whether this is a constant character, although stated as so by Stål.

fuscously biannulate; vertex in fresh specimens with a virescent tint; pronotum with the anterior area and a spot at base ochraceous or pale virescent; mesonotum with the posterior angle

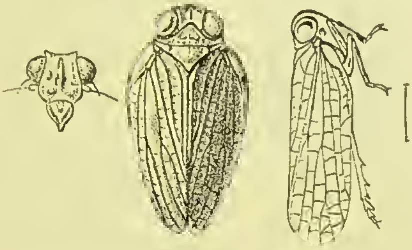

Fig. 172.—*Tetrica viridimixta.*

virescent; tegmina brownish ochraceous, the venation with a virescent tint, a pale virescent spot on basal costal area, and a large pale longitudinal suffusion beyond middle of costal marginal area.

Var. The virescent tint obsolete, and the whole submarginal costal area of tegmina pale flavous-virescent, the basal spot and longitudinal suffusion being united.

Length incl. tegm. 6 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus HYSTEROPTERUM.

Hysteropterum, *Amy. & Serv. Hém.* p. 519 (1843); *Fieb. Cic. Rev. et Mag. Zool.* 1875, p. 365; *Melich. Hom. Faun. Ceylon*, p. 76 (1903).

Type *H. immaculatum*, Fabr., a Palæarctic species.

Distribution. Palæarctic and Oriental Regions.

Head (including eyes) as wide as pronotum; vertex quadrangular, about as broad as long, its anterior margin slightly angularly produced in front of eyes, its lateral margins ridged; face scarcely longer than greatest breadth, posteriorly moderately ampliate, centrally and sublaterally carinate, the sublateral carinations curved and meeting at anterior margin; legs moderately short and stout; pronotum a little shorter than mesonotum, truncate posteriorly and subangularly produced anteriorly, faintly centrally carinate; mesonotum with its anterior margin ridged and somewhat widely tricarinate; tegmina placed vertically, narrowed to apices which are rounded, the upper two longitudinal veins forked at about one-third before their apices and excluding basal area with numerous faint subobsolete transverse veins.

1904. **Hysteropterum subfasciatum**, *Melich. Hom. Faun. Ceylon*, p. 78 (1903).

Pale brownish-ochraceous; tegmina with two oblique piceous

fasciæ; vertex of head smooth, a little concave; pronotum with a series of very small pale fuscous tubercles on its lateral margins, central carination distinct; mesonotum pale chocolate-brown, the lateral angles and apex much paler, the carinations distinct, its anterior margin distinctly finely ridged; legs a little spotted and streaked with fuscous; tegmina with the longitudinal veins raised, obsoletely mottled with paler coloration.

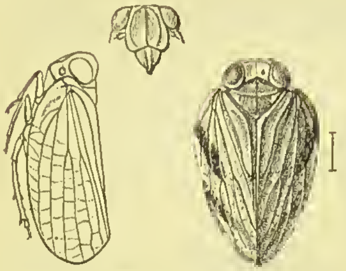

Fig. 173.
Hysteropterum subfasciatum.

Var. Paler and more concolorous than the typical form (*supra*); tegmina without the piceous oblique fasciæ; mesonotum paler and more concolorous.

Length incl. tegm. 5 millim.

Hab. Ceylon; Trincomali (*Mus. Hongrois*).

I have again to acknowledge my obligation to Dr. Horváth, of the Budapest Museum, for allowing me to examine and figure a typical example of this species.

1905. **Hysteropterum fusculum**, *Melich. Hom. Faun. Ceylon*, p. 77 (1903).

"Yellowish-brown; vertex of head twice as broad as long, in front straightly truncate, angulated and deepened above; face distinctly longer, widened and rounded to clypeus, with a distinct central percurrent carination; face unicolorous, brownish; pronotum as long as vertex, anterior margin obtusely angularly produced, posterior margin straight, deepened above into a groove with several smooth granules; mesonotum with three indistinct longitudinal carinations; tegmina moderately long, broadly rounded off behind, with three longitudinal veins, the outer forked at base, and the other two forked at middle of corium, the veins connected by numerous paler transverse veins; wings fuliginous; body beneath and legs brownish-yellow." (*Melichar.*)

Length 5 millim.

Hab. Ceylon (*Mus. Berlin*).

I have failed to apply the above description to any specimen which has hitherto passed through my hands.

Genus **SARIMA**.

Sarima, *Melich. Hom Faun. Ceylon*, p. 78 (1903).

Type, *S. illibata*, Melich.

Distribution. Ceylon.

Head (including eyes) as wide as pronotum; vertex subquadrangular, its base angularly emarginate, its margins ridged and with

a subobsolete central carinate line; face somewhat shortly ampliated and rounded posteriorly, before clypeus distinctly sinuate, basal and lateral margins ridged, a fine central longitudinal carination, and two anterior central carinations which commence at about middle of lateral margins and are rounded inwardly and connected at a little before basal margin; clypeus short, robust; pronotum somewhat short, its base truncate, anteriorly angularly produced, with a somewhat faint median carination; mesonotum obsoletely tricarinate; legs of moderate length, posterior tibiæ with two spines; tegmina subcoriaceous, the longitudinal veins distinctly raised, and between them a number of more indistinct transverse veins, the costal margin a little angularly produced before middle, the costal membrane broad with an inner curved vein enclosing a semicircular maculate space, the tegmina are placed vertically and they are rounded at apices.

1906. **Sarima illibata**, *Melich. Hom. Faun. Ceylon*, p. 79 (1903).

Head, thorax, and tegmina dark umber-brown; lateral and posterior margins and central carina to vertex of head paler and more ochraceous; extreme lateral margins of tegmina ochraceous, and the costal membrane around and beyond the semicircular dark maculate area greyish-flavescent, some scattered obscure fuscous spots sometimes becoming somewhat confluent on apical areas; body beneath and legs pale ochraceous; abdomen beneath with a central discal piceous maculate fascia; the vertex of head has two anterior transverse and two smaller posterior impressions; eyes black, ochraceous at extreme base; the margins of pronotum, especially its apex, and more faintly the central carinate line, are dull ochraceous; the carinations to mesonotum are obsolete and do not quite reach the posterior margin; the transverse subobsolete veins between the longitudinal veins of tegmina are somewhat regular, but on the costal area or membrane there are three or four above the semicircular maculate area, and they become again distinct a little beyond middle.

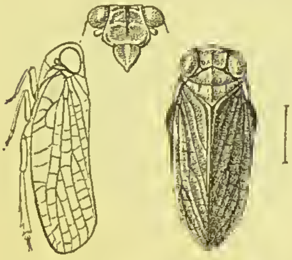
Fig. 174.—*Sarima illibata.*

Length incl. tegm. 5 to 6½ millim.

Hab. Ceylon; Kandy, Pundaluoya (*Green*).

I have to thank Dr. Horváth, of Budapest, for allowing me to see a cotype of this species, which is figured above.

1907. **Sarima elongata**, *Melich. Hom. Faun. Ceylon*, p. 80 (1903).

Allied to *S. illibata*, but with the body longer and narrower, pale yellowish or greenish-brown; vertex rather broader, with

two concavities; face scarcely longer than breadth at clypeus, rather narrowed between eyes, finely and thickly punctured, not marked, greenish-yellow or yellowish-brown, with a central ridge extending to its middle and a transverse ridge running close below its basal margin and parallel to it, the ends curved down near outer borders of the face, narrow space between this transverse ridge and the facial margin dark brown; tegmina rather long and narrow, semitransparent, transverse veins in hinder area thicker, in the front half only some isolated transverse veins other characters as in *S. illibata*.

"Length 6 to $6\frac{1}{2}$ millim."

Hab. Ceylon (*fide Melichar*).

Among the specimens which have passed through my hands, I have not found one that definitely agrees with the above diagnosis; I have therefore reproduced what I believe are the salient points from Dr. Melichar's description.

1908. **Sarima cretata**, sp. n.

Head, pronotum, mesonotum, and tegmina castaneous-brown; body beneath and legs yellowish or pale virescent; vertex of head and face either virescent or very pale testaceous-brown, the latter with the central carination becoming evanescent before apex; tegmina with the base obliquely pale ochraceous, at about centre of costal area a large semihyaline whitish spot outwardly narrowly margined with pale ochraceous and from the end of the spot to the apex the costal area is pale ochraceous; on the disk of each tegmen there are a few prominent cretaceous tomentose spots, of which the principal are three in transverse curved series a little beyond the middle, and a cluster of smaller and more obscure spots on apical area; sides of face and the abdomen beneath rather strongly virescent; other characters resembling those of *S. illibata*.

Length incl. tegm. $5\frac{1}{2}$ millim.

Hab. Ceylon; Pundaluoya (*Green*).

Genus GIVAKA, nov.

Type, *G. hampsoni*, Dist.

Distribution. British India.

Head (including eyes) about as wide as pronotum; vertex moderately porrect, somewhat longly and triangularly produced in front of eyes, with an obsolete median carination, the lateral margins distinctly ridged; face somewhat obliquely convex, narrowest at base, widened posteriorly, smooth, margins slightly ridged, with a fine central median carination; clypeus semiglobose; legs moderately short, posterior tibiæ with two spines; pronotum short, convexly arched anteriorly, truncate posteriorly, faintly centrally carinate; tegmina placed in an obliquely vertical position, narrowed to apices, which are truncately rounded, costal margin

obliquely arched to about one-third from base, thence almost obliquely straight to apex, costal membrane transversely veined, about apical half coarsely transversely veined, remaining area more obsoletely marked with transverse veins, second and third longitudinal veins strongly forked near middle, on the upper and lower longitudinal veins beyond middle there are several distinct ovate cellular areas.

Allied to the Palæarctic genus *Mycterodus*, Spin.

1909. **Givaka hampsoni**, sp. n.

Pale brownish-ochraceous, spotted and marked with fuscous; vertex of head testaceous, the lateral edges piceous; face testaceous, the lateral edge piceous except at apical areas, central carination a little darker except at base and apex, its lateral areas a little oblique, anteriorly somewhat incurved; pronotum and mesonotum pale brownish-ochraceous; tegmina pale brownish-ochraceous, with a large irregularly transverse dark fuscous patch on basal area, and an irregularly obliquely longitudinal similarly coloured patch on apical area, the longitudinal veins and the transverse veins on apical half strong and prominent; abdomen beneath with a central longitudinal segmental series of large piceous spots, and a series of small indented spots at lateral segmental margins.

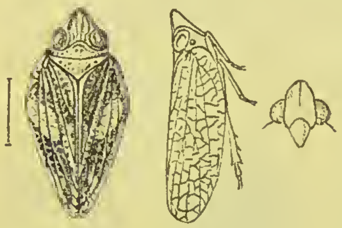

Fig. 175.—*Givaka hampsoni.*

Length incl. tegm. 8 millim.

Hab. Nilgiri Hills (*Hampson*).

Genus **VISHNULOKA**, nov.

Type, *V. prominula*, Dist.

Distribution. British India.

Allied to *Givaka*, but differing in the following characters:—The face is convex and smooth, without any carination, much narrowed anteriorly, the vertex is long and porrect, the lateral margins broadly, roundly prominent; the second longitudinal vein to tegmina is forked near apex, the lower longitudinal vein forked near middle, the bifurcations meeting on margin and thus apparently forming an elongate cellular area, transverse veins less strongly marked than in *Givaka.*

1910. **Vishnuloka prominula**, sp. n.

Pale ochraceous, tegmina with fuscous markings; vertex of head longly porrect and acuminate, the lateral margins broadly prominent and finely transversely wrinkled; face moderately con-

vexly rounded, very finely transversely striate, its lateral margins narrowly flavescent; pronotum granulose; mesonotum imperfectly seen through typical specimen being pinned; tegmina with a slightly oblique longitudinal piceous fascia, which commences near middle of costal margin and terminates at apex and is inwardly strongly excavate, extreme edge of basal half of costal margin piceous and the costal membrane at this region pale testaceous; body beneath and legs pale ochraceous, the abdomen more or less infuscate centrally and laterally, the spines to the posterior tibiæ concolorous.

Fig. 176.—*Vishnuloka prominula.*

Length incl. tegm. 10 millim.

Hab. Sikhim; Mungphu (*Atkinson, Coll. Dist.*).

1911. **Vishnuloka cuneata**, sp. n.

Ochraceous; tegmina marked with piceous; vertex of head very pale brownish-ochraceous, obsoletely wrinkled, the apical area and a central line pale ochraceous, two piceous spots at apex; face pale brownish-ochraceous, the lateral and apical margins broadly flavescent, a short central line of the same colour immediately before clypeus and continued through it; pronotum and mesonotum pale brownish-ochraceous, both more or less coarsely granulose, the granulations to the latter principally arranged on the lateral margins; mesonotum with a subobsolete central carination; tegmina with a discal longitudinal piceous fascia on posterior half, which is irregularly excavate on each side; body beneath and legs ochraceous; abdomen more or less suffused with fuscous; tibiæ somewhat distinctly fuscously bi-annulate.

Length incl. tegm. 9 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Vertex of head slightly shorter and distinctly less acuminate than in *V. prominula*, colour-markings also different.

Genus **RADHA**.

Radha, *Melich. Hom. Faun. Ceylon*, p. 76 (1903).

Type, *R. acuminata*, Melich.

Distribution. Ceylon.

Head with eyes about as broad as pronotum; vertex triangularly produced in front of eyes, moderately concave, its margins slightly raised and reflexed; face almost as broad as long, distinctly forwardly, centrally, laminately produced at base, transversely depressed before middle, the lateral margins, particularly on posterior halves, prominently ridged; clypeus ridged at base;

antennæ short, inserted just beneath eyes; pronotum short, depressed before the raised mesonotum, its posterior margin truncate, its anterior margin convex; mesonotum raised, its anterior margin suddenly deflected before the depressed pronotum; legs moderately short and robust, posterior tibiæ not spined; tegmina short, broad, ampliated posteriorly, costal margin angularly rounded, apical margin truncate, the principal veins distinctly raised, a number of less distinct transverse veins on apical area, the central sutural margins of the tegmina for about halfway from base broadly reflexed and forming a longitudinal groove.

1912. **Radha acuminata**, *Melich. Hom. Faun. Ceylon*, p. 76, t. iii, f. 6, *a* (1903).

Ferruginous-brown; head with the margins of vertex and base of face piceous; eyes dull ochraceous, thickly speckled with piceous; mesonotum a little paler in hue, its lateral margins and anterior lateral angles ferruginous-brown; sternum and abdomen beneath pale ochraceous; a prominent spot on each side of mesosternum, the abdominal segmental margins, and each lateral area of the anal segment piceous-black; coxæ ochraceous; femora ochraceous, thickly speckled or suffused with ferruginous-brown, their apices paler; tibiæ more or less ferruginous-brown; tegmina dull ochraceous, on apical area much suffused with fuscous, on basal half with an irregular broad dark ferruginous-brown fascia, which is posteriorly and upwardly reflexed into a discal spot, a spot of the same colour at the apices of the raised sutural margins, and another on each side of base behind the apex of mesonotum.

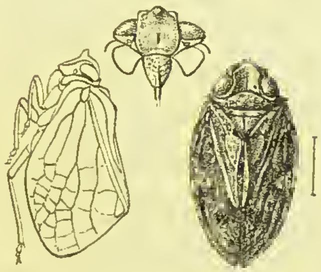

Fig. 177.—*Radha acuminata.*

Length incl. tegm. 7 millim.

Hab. Ceylon; Nalanda (*Mus. Hongrois*).

Dr. Horváth has kindly enabled me to examine and figure this species.

Genus DEVAGAMA, nov.

Type, *D. rana*, Dist.

Distribution. British India.

Head broad, including eyes as wide as pronotum; vertex quadrangular with a transverse ridge before anterior margin, its posterior margin moderately concave, its lateral margins ridged, and a central ridge in front of the transverse ridge; face a little concave at anterior margin, laterally posteriorly a little ampliate and rounded, centrally carinate, and with a curved discal sublateral carination

on each side; pronotum with its posterior margin truncate, anteriorly subtriangularly produced and with a central longitudinal ridge; mesonotum centrally slightly longer than pronotum with a central ridge, the margins of both pro- and mesonota carinate; abdomen short and robust; legs moderately stout and long; tegmina placed vertically, strongly ampliated posteriorly, the apical margin somewhat obliquely truncate with many transverse veins, some of which are obscurely visible; a distinct series of short apical veins, which are continued round apex on posterior edge of costal area.

1913. **Devagama rana**, sp. n.

Body and legs brownish-ochraceous, head and thorax a little paler in hue; eyes concolorous; tegmina very pale ochraceous with a slight virescent tint, finely but sparsely speckled with fuscous, a few of the discal spots being prominent, the costal membrane pale bright ochraceous; tegmina a little convex on each side; tibiæ somewhat short, broad, and longitudinally sulcate; antennæ inserted beneath the eyes, the second joint short and globose.

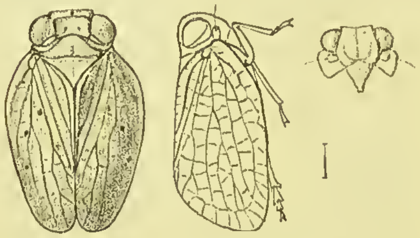

Fig. 178.—*Devagama rana.*

Length incl. tegm. 4 millim.

Hab. "India" (*Brit. Mus.*).

The specimen on which this genus and species are founded is without a precise locality beyond the one given above; it was derived from the collection once made by the Entomological Society of London.

1914. **Devagama venosa**, sp. n.

Pale brownish-ochraceous; apices of femora, bases and apices of anterior and intermediate tibiæ, and apices of anterior tarsi castaneous-brown; disk of abdomen beneath castaneous-brown, the segmental margins piceous; tegmina with both the longitudinal veins and the transverse veins on apical area very strongly raised and prominent, and a few somewhat large but obscure piceous spots on the apical area; vertex of head with two basal spots and a curved piceous line on each side of disk connected transversely a little before apex; pronotum with two transverse narrow tubercles on disk.

Length incl. tegm. 5 millim.

Hab. Nilgiri Hills (*Hampson*).

A species to be recognized by the very prominent venation of the tegmina.

Genus NARAYANA, nov.

Type, *N. rusticitatis*, Dist.
Distribution. British India.

Head short, broad, including eyes as wide as pronotum; vertex broader than long, with a central median line, the anterior margin a little concave; face large, about as broad as long, slightly ampliately rounded towards clypeus, its margins carinate, its surface somewhat transversely wrinkled, with a variously shaped and more or less developed central discal tubercle, a submarginal carination on each side truncately connected before anterior margin and more prominently transversely connected before clypeus; eyes globose, very slightly sinuate posteriorly, antennæ inserted beneath them; pronotum short, anteriorly subangularly produced, posteriorly truncate; legs moderately short and stout; tegmina vertical, short and broad, costal margin moderately convex, apical margin wide and obliquely truncate, the longitudinal veins raised and sparsely furnished with small tubercles, on apical half a number of well-defined transverse veins, inner margins concavely sinuate, convexly ampliate beyond claval area.

1915. **Narayana rusticitatis**, sp. n.

Head (including face) and the pronotum dull virescent, the latter less virescent and more brownish; mesonotum brownish-yellow with a very slight virescent tint; body and legs brownish-ochraceous sprinkled with fuscous; tegmina brownish-ochraceous, the venation a little darker and tinted with virescent at base;

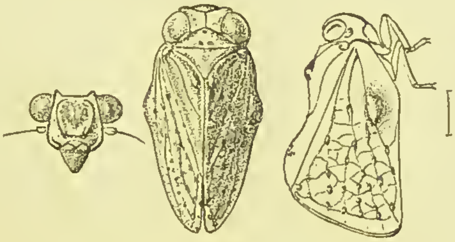

Fig. 179.—*Narayana rusticitatis.*

face virescent, the extreme lateral margins black, the disk between the submarginal carinations palely fuscous, with a central ovate depressed tuberculosity, from which two diverging carinate lines proceed anteriorly, above and beneath the fuscous disk the surface is strongly transversely wrinkled; vertex medially depressed; pronotum obscurely centrally carinate; tegmina somewhat strongly depressed at the region of the clavus, on the raised margin behind which there is a prominent transverse tubercle, the apex of the inner margin convex, the colour of the tegmina is pale brownish-ochraceous, much darker on about basal half, especially on its outer

margin and at claval area, a number of small fuscous tubercles arranged on the veins; legs strongly suffused or sprinkled with brownish-ochraceous.

Length incl. tegm. 6 millim.

Hab. Ceylon; Peradeniya (*Green*).

1916. **Narayana sellata,** *Melich.* (Hystcropterum) *Hom. Faun. Ceylon,* p. 77, t. iii, f. 8 (1903).

Olivaceous-green with piceous or black marks and shadings; face with the disk between the submarginal carinations moderately concavely depressed, thickly sprinkled with brownish-ochraceous, the central tuberculosity narrow, longitudinal, the lateral margins and the carinations bright olivaceous, only very slightly transversely wrinkled; eyes piceous; vertex olivaceous; pronotum posteriorly dull ochraceous and with its lateral margins sparingly spotted with fuscous; mesonotum with a large quadrangular basal transverse ochraceous spot slightly raised and with a distinct posterior ridge; tegmina virescent, the venation dark olivaceous shaded with black at inner areas, a small olivaceous tubercle on convex margin behind clavus, the longitudinal veins sparsely ornamented with small olivaceous tubercles; legs ochraceous, sprinkled with umber-brown.

Length incl. tegm. 5½ millim.

Hab. Ceylon; Kandy (*Green*).

1917. **Narayana piceipennis,** sp. n.

Ochraceous; eyes, suffusions to tegmina, and legs piceous; face obscurely granulose, the disk between the sublateral carinations sprinkled with fuscous-brown, posteriorly before clypeus with two transverse series of piceous spots, discal tuberculosity practically obsolete; clypeus with three longitudinal fuscous-brown fasciæ; vertex, pronotum, and mesonotum pale ochraceous; tegmina shining piceous with ochraceous suffusions, particularly beneath the costal area, where the ochraceous coloration almost predominates, there is also a distinct ochraceous spot on the costal margin where it is concave, and a very obscure piceous tubercle on basal costal margin where it is convex; anterior and intermediate femora and tibiæ piceous, the apices of the former and the bases of the latter ochraceous; posterior legs streaked with piceous.

Length incl. tegm. 5½ millim.

Hab. Ceylon; Kandy (*Green*).

1918. **Narayana umbrosa,** sp. n.

Pale umber-brown, shaded and marked with piceous and piceous-brown; head with the vertex much shaded with piceous-brown excepting near apical margin, very concave with the lateral margins laminately raised on each side above eyes and spotted with piceous-brown; face thickly mottled with piceous-brown, the basal margin concave, its lateral angles prominent, with a

distinct central carination becoming evanescent posteriorly, and practically terminating on a somewhat well-defined transverse ridge situate a little before clypeus; clypeus and legs thickly mottled with piceous-brown; coxæ, apices of posterior femora, basal abdominal segment, two discal spots and posterior margin of second abdominal segment pale ochraceous, remainder of abdomen beneath umber-brown, obscurely centrally and laterally piceous-brown; pronotum and mesonotum mottled with piceous-brown; tegmina umber-brown with a broad irregular transverse piceous fascia a little beyond base, and the costal area largely suffused with the same colour, the venation coarsely distinct and marked with a few small tubercles, the inner margin very strongly concavely sinuate and beyond the claval area strongly convexly gibbous.

Length incl. tegm. 6½ millim.

Hab. Nilgiri Hills (*Hampson*).

Genus **SAMANTIGA**, nov.

Type, *S. abdominalis*, Dist.

Distribution. British India.

Head (including eyes) a little wider than pronotum; vertex transverse, broader than long, the margins strongly ridged, its disk concave, with a central obsolete carination, base of face seen in front of vertex; face a little broader than long, slightly ampliate posteriorly, with a very distinct central carination, and a narrow subobsolete linear submarginal carination on each side connected transversely a little before basal margin; clypeus non-carinate; eyes large, slightly sinuate posteriorly before the insertion of the antennæ; pronotum a little shorter than the mesonotum, anteriorly subtriangularly produced, its posterior margin truncate; tegmina broad, a little ampliated posteriorly, costal margin obliquely straight to a little before middle, whence it is straightly deflected to apex, apical margin somewhat convexly truncate, some transverse veins before middle giving the appearance of a distinct radial area, a distinct transverse submarginal vein enclosing a narrow apical marginal area; legs moderately short and robust, posterior tibiæ not spined.

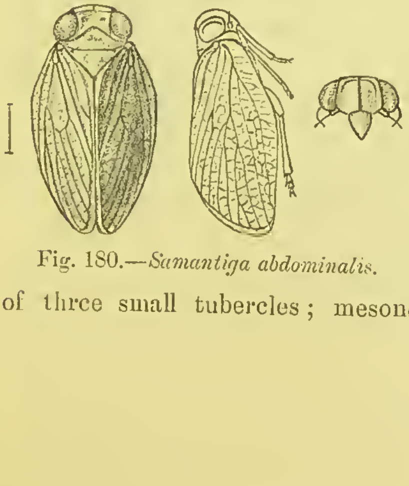

Fig. 180.—*Samantiga abdominalis.*

1919. **Samantiga abdominalis**, sp. n.

Body, tegmina, and legs pale ochraceous; abdomen beneath with a broad central maculate piceous fascia; face very finely and obsoletely granulate; vertex with a small obscure fuscous spot on each side; pronotum with a transverse discal series of three small tubercles; mesonotum with two larger obscure

tubercles; tegmina with many very obscure transverse veinlets which become more infrequent towards base, the longitudinal veins distinctly raised.

Length incl. tegm. 6 millim.

Hab. Nilgiri Hills (*Hampson*).

Genus **SIVALOKA**, nov.

Type, *S. limacodes*, Dist.

Distribution. British India.

Head (including eyes) as wide as pronotum, the vertex a little broadened at apex, its margins distinctly carinate, the basal margin of face visible in front of vertex; face much broader than long, distinctly centrally carinate, its basal margin slightly concave, posteriorly concavely excavate before clypeus, which is not perceptibly carinate; pronotum about as long as mesonotum, its posterior margin slightly convexly truncate; legs moderately short and robust, posterior tibiæ not spined; tegmina placed vertically, much widened apically, the apical margin truncate, costal margin gibbous near middle, thence straight to apex, inner margin convexly dilated at claval area, the disk a little inflated, appearing as a projection when viewed from above, somewhat prominently transversely veined on about apical two-thirds, a distinct subapical transverse vein defining a submarginal apical area, which is crossed by a few longitudinal veins.

1920. **Sivaloka limacodes**, sp. n.

Vertex of head, pronotum, and mesonotum dull ochraceous; face, body beneath, and legs castaneous, the tibiæ and the posterior femora ochraceous; abdominal segmental margins beneath ochraceous; tegmina shining ferruginous-brown; vertex of head a little anteriorly suffused with brown, the margins very palely distinct; face with a medial transverse line and some very small submarginal spots ochraceous; clypeus with its lateral areas a little piceous; tegmina slightly darker on basal area, the longitudinal veins distinctly raised; legs distinctly sulcate.

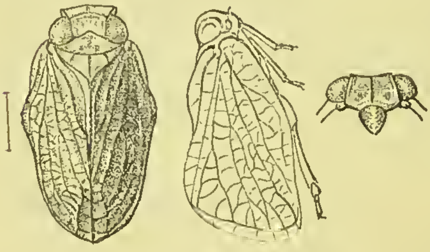

Fig 181.—*Sivaloka limacodes.*

Length excl. tegm. 7 millim.

Hab. "India" (*Brit. Mus.*).

1921. **Sivaloka bipartita**, sp. n.

Body and legs brownish-ochraceous; face pale ochraceous, its basal margin brownish-ochraceous and with a broad transverse curved piceous fascia crossing its disk; a piceous spot on each side of pronotum, and a piceous apical annulation to the anterior femora; abdomen beneath more or less suffused with piceous; tegmina with about basal half pale brownish-ochraceous, the apical half pale castaneous-brown, inwardly margined with piceous, a piceous claval streak and a few small spots of the same colour on basal marginal area, costal area at about middle broadly pale flavescent or subhyaline; pronotum with a transverse series of three small tubercles on disk; mesonotum with a pale raised curved and broad line between the lateral margins, centrally connected with the anterior margin by a narrower and only slightly raised pale line; central carination to face becoming obsolete posteriorly.

Length incl. tegm. 6 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus SUDASINA, nov.

Type, *S. testudo*, Dist.

Distribution. Ceylon.

Head (including eyes) a little wider than pronotum; vertex a little widened anteriorly, with two distinct maculate indentations near base, the margins finely carinate and with a central raised longitudinal line, the base of face slightly visible in front of vertex, which gives the latter the appearance of being angularly produced; face longer than broad, its basal margin concave, almost perpendicularly straight to clypeus which is placed at right angles to it, disk of face irregularly subrugulose, very slightly ampliated near middle; pronotum about as long as mesonotum, its anterior margin angularly convex, its posterior margin truncate; tegmina strongly ampliated towards apices, apical margin convexly truncate, costal margin very strongly sinuate, its disk a little inflated and, viewed above, giving the appearance of a lateral protuberance, a number of transverse veins on about apical two-thirds and a distinct submarginal apical transverse vein defining a subapical area, which is crossed by a few longitudinal veins, all the longitudinal veins distinctly raised and somewhat sparsely covered with minute tubercles; legs mutilated in typical specimen.

1922. **Sudasina testudo**, sp. n.

Vertex of head, face, clypeus, pronotum, and mesonotum ochraceous, more or less thickly sprinkled with castaneous; body beneath ochraceous, more or less suffused with brownish; legs

mutilated in typical specimen; tegmina castaneous-brown; inner margins of tegmina near base of medial suture bright ochraceous; tegmina on apical margin with five small ochraceous spots, the costal margin minutely speckled with ochraceous and at the concave

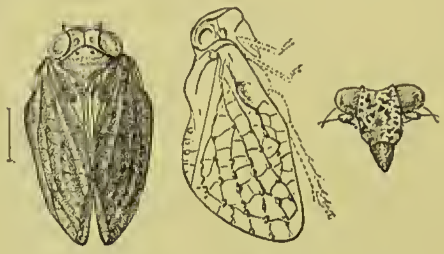

Fig. 182.—*Sudasina testudo.*

sinuation pale ochraceous, longitudinal veins distinctly raised and sparsely finely tuberculate.

Length incl. tegm. $6\frac{1}{2}$ millim.

Hab. Ceylon; Pundaluoya (*Green*, *Brit. Mus.*).

Genus **LUSANDA**.

Lusanda, *Stål, Berl. ent. Zeitschr.* iii, p. 322 (1859); *Melich. Hom. Faun. Ceylon*, p. 73 (1903).

Type, *L. fissiceps*, Stål.

Distribution. Ceylon.

"Body compressed; head produced, vertex transverse; face strongly produced, conical, its apex fissured; ocelli none; pronotum and mesonotum flat, the latter longer than the former; tegmina pendent, obliquely subtriangular, at the commisural junction somewhat concave, apex broad, obliquely truncate, coriaceous, sparingly reticulate; posterior tibiæ with two spines." (*Stål.*)

1923. **Lusanda fissiceps**, *Stål, Berl. ent. Zeitschr.* iii, p. 322 (1859); *Melich. Hom. Faun. Ceylon*, p. 73, t. iii, f. 5 (1903).

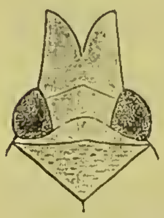

Fig. 183.
Lusanda fissiceps.

"Sordidly pale flavescent suffused with fuscous; genæ, frontal sinus, and anterior legs fuscous, minutely irrorated with paler coloration; anterior coxæ and trochanters white, medial coxæ with their bases darkly fuscous; tegmina granulate, spotted with fuscous." (*Stål.*)

"Length incl. tegm. scarcely 7 millim."

Hab. Ceylon.

I have not seen this species and have therefore copied Stål's description and reproduced Melichar's figure.

Genus TONGA.

Cyrene, *Westw. Arc. Ent.* ii, p. 35 (1843); *Atkins. J. A. S. Beng.* lv, p. 48 (1886); *Melich. Wien. ent. Zeit.* xx, p. 177 (1901); nom. præocc. (Pisces).

Tonga, *Kirk. Entomologist*, 1900, p. 242, n. nom.

Type, *T. guttulata*, Westw., a Sumatran species.

Distribution. Oriental and Malayan Regions.

"Body short, stout, abdomen compressed; head with a conical long porrect cephalic process, acute at apex, carinate above at the sides, ridges obliterated before the apex, posteriorly extended to the pronotum, eyes large, lateral, emarginate beneath, ocelli none; antennæ small, inserted below the eyes; pronotum as long as the mesonotum, disk impressed in the middle with two points; tegmina coriaceous, opaque, homogeneous, convex, broad, anterior margin sinuate, rounded at the apex, posterior angle acute, veins a little ramose; legs short, robust, posterior tibiæ with three spines; abdomen truncated at the apex, ending in two lobes, funished with a slender erect appendage, concave at the apex." (*Westwood.*)

The above is practically a copy of Westwood's description, and is given because I have not seen the only species recorded from British India, while the shape of the eyes is differently described in the generic and specific diagnoses.

1924. **Tonga westwoodi,** *Sign.* (Cyrene) *Ann. Soc. Ent. Fr.* 1862, p. 124, t. i, f. 5, A, B, C; *Atkins. J. A. S. Beng.* lv, p. 49 (1886); *Melich.* (excl. syn.) *Wien. ent. Zeit.* xx, p. 180 (1901).

"Brownish-yellow; a whitish-yellow line extends from the tip of the head to the end of the tegmina, which have several dots of the same colour on the disk and are granulate though the whole length,

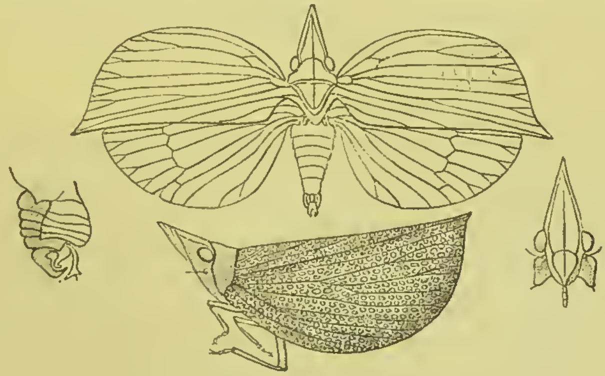

Fig. 184.—*Tonga westwoodi.*

so as to have the appearance of being shagreened; head once and a half longer than broad (including the eyes), black at the extremity and with a whitish-yellow median band, a little elevated, sides carinate; face concave at the base and grooved, quadricarinate towards its upper third, the two median ridges reaching the

extremity of the head, whereas the two lateral ridges proceed obliquely upward, contour the head, and lose themselves in the lateral edges of the vertex towards its upper third; rostrum short, not extending beyond the posterior coxæ; eyes not emarginate, oval; pronotum thrice broader than long, rugose, especially towards the anterior and posterior borders, with an elevated whitish-yellow band and on each side a sunken spot; posterior margin truncated straightly, anterior convex with a strong emargination below the eyes; mesonotum triangular and remarkable for a ridge or rather transverse fold near the anterior margin and very distinct from it, this fold appears a little below the latter and extends from one humeral angle to the other and also a little below; tegmina concave, shell-shaped, with the posterior angle acute, the anterior margin convex, rounded, a little concave on reaching the posterior angle, posterior or sutural margin straight and whitish, the entire surface shagreened, veins numerous and branched towards the tip, several whitish dots on the disk; wings transparent, hyaline; abdomen reddish-yellow, compressed; legs brownish-yellow; posterior femora with two lateral spines towards the extremity." (*Signoret.*)

Length excl. tegm. 14; exp. tegm. 22 millim.

Hab. Burma? (*fide Atkinson*).—Cochin China.

Melichar (*supra*) has included in the synonymy of this species the *Cyrene fusiformis*, Walk., and its synonym *Chalepus anconophoroides*, Walk., both of which belong to the genus *Chalepus* and appertain to the family Cercopidæ. He also includes the *C. obtusata* of Nonalhier, which seems clearly to be also a species of *Chalepus* or an allied genus.

Genus **FLAVINA**.

Flavina, *Stål, Öfv. Vet.-Ak. Förh.* 1861, p. 209: *Hem. Afr.* iv, p. 206 (1866); *Atkins. J. A. S. Beng.* lv, p. 44 (1886).

Type, *F. granulata*, Stål.

Distribution. Oriental Region.

Head (including eyes) distinctly narrower than the pronotum; vertex subquadrate, its margins ridged; face about one and a half times as long as broad, a little rounded before clypeus, centrally carinate, but the carination obliterated before clypeus and with a subbasal transverse angulated ridge, between which and the basal margin are two foveations; clypeus non-carinate; pronotum angularly produced behind the vertex, the base truncate; mesonotum slightly longer than the pronotum, with a central carination, less than twice as long as broad; legs long, posterior tibiæ with five spines; tegmina a little longer than the abdomen, the costal margin slightly convex, the radial vein bifurcate near base, the upper longitudinal vein bifurcate near apex, the second longitudinal vein bifurcate before middle, the two latter united before middle by a distinct transverse veinlet; longitudinal veins prominent, and between them a number of obscure veinlets, thus rendering the whole surface faintly reticulate.

1925. **Flavina granulata**, *Stål, Öfv. Vet.-Ak. Förh.* 1861, p. 212; *Atkins. J. A. S. Beng.* lv, p. 45 (1886).

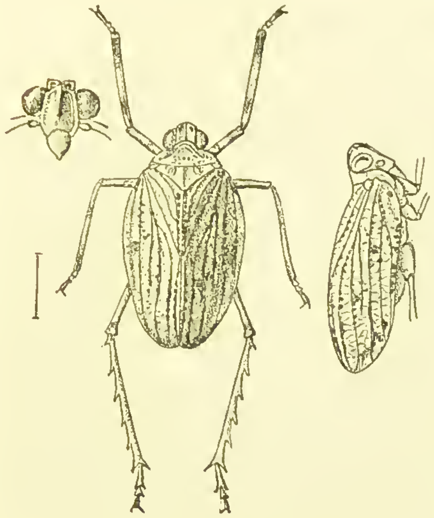

Fig. 185.—*Flavina granulata.*

Pale dull yellowish-testaceous, above with a slight dull virescent tint; anterior angles of vertex and basal angles of face piceous; face with the lateral margins minutely spotted with pale ochraceous; pronotum granulate, especially on lateral margins and posterior area; mesonotum with a central carination, on each side of which is an oblique, elongate, foveate, tubercular line; tegmina with the basal halves of inner margins on each side of longitudinal suture closely and prominently spotted with black, other distinct black speckles or spots are found principally on the outer and inner longitudinal veins; medial and apical annulations to anterior and intermediate femora, subbasal annulations and apical areas of anterior tibiæ, and streaks to posterior femora fuscous-brown.

Length incl. tegm. 7 to 8 millim.

Hab. "India" (*Brit. Mus.*); Mussooree (*Mackinnon*).

I have not seen the type of this species, but think I have correctly identified it.

1926. **Flavina? striata**, sp. n.

Dull ochraceous with a strong virescent tint; vertex with the margins ridged and with a distinct central carination; face with the carinations very distinct, a piceous spot on each side of the central carination immediately beneath the fusion of the sublateral carinæ, both the sublateral and central carinæ have a central piceous line which renders them duplex in appearance; pronotum crossed by a number of longitudinal granulose striations; mesonotum with the central carination distinct and with a brownish raised carinate line on each lateral area; tegmina with the veins prominent, for the most part fuscous, and here and there ornamented with small piceous spots; posterior tibiæ with three spines.

Length incl. tegm. 5 millim.

Hab. Tenasserim; Myitta (*Doherty*).

I have included this species, for the present, in the genus *Flavina*, despite the posterior tibiæ possessing only three spines

and some very minor points of difference in the venation of the tegmina; in other characters the species is congeneric, and apart from the spines on the posterior tibiæ may at once be separated from *F. granulata* by the longitudinally striate pronotum.

Genus NILALOHITA.

Type, *N. curculioides*, Dist.

Distribution. Burma.

Head (including eyes) distinctly narrower than pronotum, vertex subquadrate, its margins ridged; face about twice as long as broad, its base strongly angularly emarginate, a little ampliately rounded before clypeus, centrally carinate, the carination becoming evanescent before its apex, and with a subbasal transverse angulated ridge; clypeus large and broad, non-carinate; pronotum anteriorly angularly produced behind vertex, its posterior margin truncate; mesonotum slightly longer than pronotum (the question as to a central carination undeterminable, owing to the typical specimen being pinned at that section); legs long, posterior tibiæ with five spines; tegmina a little longer than the abdomen, about twice as long as broad, the costal margin straight or somewhat concavely sinuate, radial vein bifurcating at a short distance from base, upper longitudinal vein bifurcating near apex, between the longitudinal veins which are prominent are situate a number of irregular veinlets which give the tegmina a reticulate character.

The *Issus lineatus*, Walk., from Borneo, is included in this genus.

927. Nilalohita curculioides, sp. n.

Brownish-ochraceous; vertex to head with the ridges (especially the lateral ones) somewhat strongly prominent, its disk transversely striate; face and clypeus smooth, shining black, their margins ochraceous (discontinuous on clypeus); posterior femora, apical areas of anterior and intermediate femora, basal annulations and apical areas of anterior and intermediate tibiæ, and suffusions to abdomen beneath pale castaneous; tegmina reticulately subcoriaceous, with a few scattered piceous spots, base of costal area and the transverse reticulate veinlets pale ochraceous; pronotum coarsely granulate in each basal lateral area, its lateral margins very finely spotted with fuscous; the

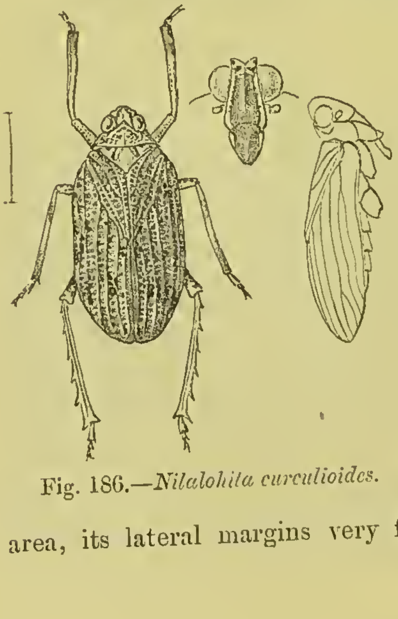

Fig. 186.—*Nilalohita curculioides.*

spines to posterior tibiæ long and concolorous; tibiæ prominently longitudinally sulcate.

Length incl. tegm. 11 millim.

Hab. Burma; Ruby Mines (*Doherty*).

Genus HEMISPHÆRIUS.

Hemisphærius, *Schaum, in Ersch & Gruber Allg. Enc. Wissensch. Künste*, i, p. 71 (1850); *Stål, Hem. Afr.* iv, p. 203 (1866); *Atkins. J. A. S. Beng.* lv, p. 44 (1886); *Melich. Hom. Faun. Ceylon*, p. 74 (1903).

Type, *H. coccinelloides*, Burm., from the Philippines.

Distribution. Oriental and Malayan Regions.

Apical joint of rostrum longer than thick, oval, oblong, or elongate; tegmina entirely convex, distinctly or obsoletely veined, sometimes the venation is apparently absent; clavus and corium connate, no claval suture; body depressed; vertex narrower than eyes or subequal in breadth; pronotum truncate at base, sinuate behind the eyes, the sides behind the eyes hardly visible from above; posterior tibiæ bispinose; anterior femora simple.

These insects have a strong superficial resemblance to the Coccinellidæ, or "lady-bird" beetles. It is probably owing to the well-known variation existing in some of the species of those Coleoptera, that a similar amount of variability has been suspected in these Homoptera. I do not think this exists in anything like the extent predicated by some writers, and in most cases, where I have been able to examine a fair series of specimens, a usual amount of specific constancy is observable.

A. *Face unicolorous, without longitudinal fasciæ.*

1928. **Hemisphærius rufovarius**, *Walk. List Hom. Suppl.* p. 95 (1858); *Atkins. J. A. S. Beng.* lv, p. 44 (1886).

Head (including face), pronotum, and mesonotum testaceous; two spots at base of face (seen from above in front of vertex), pronotum (excluding a central fascia), central fascia, and a large oblique spot in each lateral angle to mesonotum pale ochraceous; tegmina very dark ochraceous, the lateral margins from a little beyond base broadly flavescent; clypeus black; body beneath and legs apparently ochraceous, but imperfectly seen, owing to the typical specimen being in a carded condition; tegmina finely granulose, much more obsoletely so on flavescent margin; eyes fuscous, their

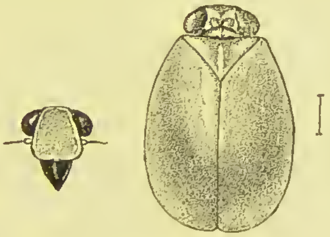

Fig. 187.
Hemisphærius rufovarius.

inner margins ochraceous; mesonotum somewhat obscurely wrinkled, its central fascia moderately ridged.

Length incl. tegm. 4½ millim.*

Hab. Burma (*Brit. Mus.*).

1929. **Hemisphærius testaceus**, sp. n.

Testaceous-red; vertex of head with the anterior margin virescent; face testaceous-red, its apical margin ochraceous or virescent; clypeus black; pronotum with transverse virescent spots; mesonotum with a central fascia and the basal lateral angles virescent; tegmina testaceous, their inner, apical, and costal margins somewhat broadly ochraceous with a virescent tint, their surface finely granulose; body beneath and legs ochraceous with a virescent tint, posterior femora streaked with piceous.

Var. Tegmina with a short curved virescent fascia near base of costal area.

Length incl. tegm. 4½ millim.

Hab. Tenasserim; Myitta (*Doherty*).

1930. **Hemisphærius virescens**, sp. n.

Pale virescent; head, pronotum, and mesonotum with an ochraceous or very pale testaceous tint; vertex of head with the anterior margin dark virescent; face unicolorous, clypeus black; pronotum with transverse dark virescent spots; mesonotum with a central fascia and the basal angles dark virescent; tegmina pale virescent, unicolorous, finely granulose; body beneath and legs greenish-ochraceous, the tarsi piceous; inner margins of eyes beneath piceous.

Length incl. tegm. 5 millim.

Hab. Tenasserim; Myitta (*Doherty*).

This species, save in its distinct coloration, is allied to the preceding species *H. testaceus*. It is, however, larger, and there is nothing to denote that such diverse forms, of which I possess a series of each, can, or should, be considered conspecific.

1931. **Hemisphærius secundus**, *Melich. Hom. Faun. Ceylon*, p. 75 (1903).

Body, legs, and tegmina pale virescent; eyes brownish; a lateral, linear, marginal spot on each side of face before clypeus, a spot on each side of mesosternum, apical margin of clypeus, bases of anterior femora, and a spot at apices of all the femora black; vertex of head with its lateral margins rather tuberculously ridged; face practically concolorous, its extreme lateral margins slightly more intensely virescent; apical lateral areas of clypeus a little

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* Walker has given the dimensions of the species as "Length of the body 1¾ line; of the wings 4 lines"; this is quite inapplicable to the type specimen.

brownish; pronotum with a distinct central carination; mesonotum faintly transversely striate, with a short prominent longitudinal carination on each side of disk; tegmina very finely granulose.

Length incl. tegm. 5 millim.

Hab. Ceylon; Anuradhapura, Mihintale (*Mus. Hongrois*).

Dr. Horváth, of Budapest, has kindly enabled me to see a cotype of this species.

B. *Face with a medial red fascia.*

1932. **Hemisphærius schaumi,** *Stål, Öfv. Vet.-Ak. Förh.* 1855, p. 191; *Melich.* (excl. syn.) *Hom. Faun. Ceylon,* p. 74 (1903).

"Sordidly flavescent; face flavo-virescent, with a medial red fascia; hemelytra sordidly subhyaline, the anterior costal margin black, a small spot at base of suture, and two submedian subcurved oblique flavous lines." (*Stål.*)

A very variable species in coloration, the ground-colour of the tegmina (excluding margins) dull ochraceous or frequently black, the margins, however, and the oblique line and spots always pale virescent; anterior margin of mesonotum black; anterior tibiæ more or less spotted and streaked with piceous; face with a single central red fascia.

Length incl. tegm. 5 to 6 millim.

Hab. Ceylon; Maskeliya (*Green*).

1933. **Hemisphærius nilgiriensis,** sp. n.

Head, pronotum, mesonotum, body beneath and legs pale ochraceous; head with the disk of vertex testaceous and with a few black dots, sometimes wholly black; face somewhat narrow, with a very broad central longitudinal red fascia; clypeus with two red fasciæ; mesonotum testaceous, with three large pale ochraceous spots; hemelytra flavescent, the venation close, prominent, somewhat reticulate, a moderately broad sublateral fascia terminating at a little before apex on inner margin, a broader central transverse fascia, from which there posteriorly bifurcates a short oblique fascia to suture, black; body beneath speckled with fuscous, legs more or less streaked with piceous or black.

Length incl. tegm. 4 millim.

Hab. Nilgiri Hills (*Hampson*). Utakamand (*Atkins. Coll., Brit. Mus.*).

1934. **Hemisphærius reticulatus,** sp. n.

Pale ochraceous, varying in depth of tint; head with the vertex pale testaceous, with a few piceous spots; face with a central fascia and the lateral margins testaceous; clypeus with two longitudinal fasciæ testaceous; pronotum with the margins black, sometimes wholly of that colour; tegmina with the venation very

dense and somewhat closely reticulate; legs more or less streaked with piceous or black, bases of the anterior and intermediate tibiæ black; posterior tibiæ with two black spines.

Length incl. tegm. $4\frac{1}{2}$ millim.

Hab. Nilgiri Hills (*Hampson*). Utakamand and Kotagiri (*Atkins. Coll.*, *Brit. Mus.*).

The closely reticulate venation of the tegmina is a distinctive character of this species.

1935. **Hemisphærius elongatus**, sp. n.

Very pale flavescent; vertex of head with the disk piceous; face with a central red longitudinal fascia; tegmina with about posterior third tawny-grey inwardly margined with umber-brown, an oblique piceous fascia commencing near apical angle of mesonotum and terminating on costal margin at commencement of the tawny-grey area, claval area tinted with tawny-brown, and a costal submarginal piceous line which does not extend to base; body beneath more or less suffused with fuscous; vertex of head very strongly foveately excavate; body elongate.

Length incl. tegm. 5 millim.

Hab. Utakamand (*Atkins. Coll.*, *Brit. Mus.*).

C. *Face with two longitudinal red fasciæ.*

1936. **Hemisphærius bipustulatus**, *Walk. List Hom. Suppl.* p. 95 (1858).

Hemisphærius schaumi, *Melich.* (part.) *Hom. Faun. Ceylon*, p. 74 (1903).

Head (including face), pronotum, and mesonotum pale ochraceous; face with two sublateral red fasciæ; tegmina very dark ochraceous, their posterior lateral margins very broadly palely flavescent, their anterior lateral margins with two black marginal lines; body beneath and legs ochraceous, tegmina finely granulose.

Vertex a little narrower and face narrower at base and more distinctly ampliated near middle than in *H. schaumi*; markings of the hemelytra and face also distinctive.

Length incl. tegm. 5 millim.

Hab. Ceylon (*Cumming*, *Brit. Mus.*).

1937. **Hemisphærius dubius**, *Butl. A. M. N. H.* (4) xvi, p. 97, t. iv, f. 17 (1875).

Hemisphærius schaumi, *Melich.* (part.) *Hom. Faun. Ceylon*, p. 74 (1903).

Allied to *H. bipustulatus*, but with face a little broader between eyes, and the granulosity of the tegminal surface much more

pronounced; in colour principally differing by the presence of a very large and broad oblique black fascia commencing on each tegmen at base of suture, curved at their apices and terminating a little beyond middle of disk and a little before costal margin, an irregular black spot on each side of suture before middle and a smaller spot before apex.

Length incl. tegm. 5½ millim.

Hab. Ceylon; Ramboddo (*Nietner*, *Brit. Mus.*).

D. *Face with two linear black fasciæ.*

1938. **Hemisphærius herbaceus**, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 147 (1891).
Hemisphærius schaumi, *Melich.* (part.) *Hom. Faun. Ceylon*, p. 74 (1903).

"Green, finely punctured; face with two parallel black lines, widest in the middle, and separated by a yellowish stripe; tegmina green, finely punctured, slightly transparent and reticulated, base of costa with two parallel rufous-brown lines, and a very narrow yellowish edging continued round the rest of the tegmina, except on the inner margin; pectus, pleura, and abdomen with black stripes, those on the abdomen transverse; legs green, lined with black; tarsi testaceous, claws black." (*Kirby.*)

Length incl. tegm. 5½ millim.

Hab. Ceylon; Pundaluoya (*Green*).

I have copied Mr. Kirby's description, which adequately diagnoses the species. He also remarks:—"The black stripes on the face distinguish this species from any other known from Ceylon." Dr. Melichar has placed it as a variety of *H. schaumi*, but it differs from that species not only by the differently coloured, but between eyes narrower face, differently marked tegmina, &c.

1939. **Hemisphærius venosus**, sp. n.

Ochraceous, tegmina and legs marked with piceous; eyes pale ochraceous; face somewhat narrow, especially between the eyes, its lateral margins flavescent, sublateral margins black, central fascia red, its disk finely transversely striate; clypeus red, its lateral margins black, its margins at base flavescent; legs more or less streaked with piceous; tegmina with the veins reticulate, prominent, and very distinct, a broad curved piceous fascia crossing basal area, widest at inner and narrowest at costal margin, at about middle it is connected with posterior margin by a short and straight fascia, thus enclosing an ochraceous spot, on apical area some irregular piceous shadings which are mostly linear, at bases the tegmina are distinctly strongly impressed.

Var. Tegmina only exhibiting faint and narrow traces of the piceous fasciæ.

Length incl. tegm. 5½ millim.

Hab. Tenasserim; Myitta (*Doherty*).

The principal structural character distinguishing this species is found in the prominent venation of the tegmina.

Genus HEMISPHÆROIDES.

Hemisphæroides, *Melich. Hom. Faun. Ceylon*, p. 75 (1903).

Type, *H. æneoniger*, Melich.

Distribution. Ceylon.

"Semicircular, similar to *Hemisphærius*, but with the face not separated from the vertex but passing gradually into its surface, which is arched, vertical, narrowed between the eyes, expanded below to clypeus and perfectly smooth: clypeus broadly triangular, placed horizontally and at right angle to surface of face; eyes very flat; pronotum very narrow, band-like, broadest in the middle and greatly narrowed at the sides; mesonotum large, triangularly convex, not keeled; tegmina semicircular, strongly arched; posterior tibiæ with two spines." (*Melichar.*)

1940. **Hemisphæroides æneoniger**, *Melich. Hom. Faun. Ceylon*, p. 75 (1903).

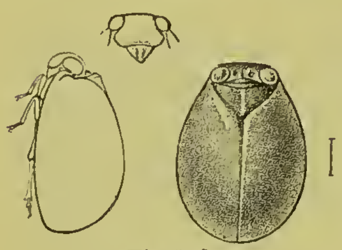

Fig. 188.
Hemisphæroides æneoniger.

Piceous, shining; a central fasciate line to mesonotum, continued for a short distance along sutural margins of tegmina, pale castaneous-brown; eyes dull pale ochraceous; posterior margin of pronotum narrowly pale castaneous-brown: body beneath and legs (indistinctly seen in carded specimen) more or less ochraceous; tegmina very finely granulose; face unicolorous.

Length incl. tegm. 4 millim.

Hab. Ceylon; Nalanda (*Mus. Hongrois*).

I have figured and described a cotype kindly forwarded to me by Dr. Horváth, of Budapest.

1941. **Hemisphæroides lineatus**, *Melich. Hom. Faun. Ceylon*, p. 76 (1903).

Head and face reddish-ochraceous, smooth, shining, posterior margin of the latter black; clypeus very pale ochraceous; eyes very pale ochraceous, more or less suffused with piceous; pronotum reddish-ochraceous; mesonotum black, with a pale ochraceous central longitudinal fascia; tegmina black, with the following pale

ochraceous markings—narrow costal marginal and submarginal fasciæ, three discal fasciæ emerging from a common stem at base, the central one apically forked, not extending beyond commencement of apical area, the innermost terminating at about centre of sutural margin; tegmina very finely granulose.

Length incl. tegm. 4 millim.

Hab. Ceylon; Nalanda (*Mus. Hongrois*).

Genus PTERILIA.

Pterilia, *Stål, Berl. ent. Zeitschr.* iii, p. 322 (1859); *Melich. Hom. Faun. Ceylon*, p. 80 (1903).

Type, *P. ceylonensis*, Stål.

Distribution. Ceylon.

Body ovate, transverse; head (including eyes) a little narrower than pronotum, vertex slightly prominent in front of eyes, transverse, on each side subcarinately elevated; face oval, base profoundly sinuate with three central longitudinal carinations, the two lateral carinations curved inwardly, strongly posteriorly and less strongly anteriorly, the central carination acute; clypeus convex; pronotum transverse, posteriorly sinuately truncate, anteriorly angularly produced between the eyes; mesonotum about as long as the pronotum; tegmina broad, moderately obliquely deflected, ampliate, broader than the abdomen, subcoriaceous, venation somewhat coarse and reticulate, the costal membrane narrow at basal area, more or less excavately sinuate, its apex obtusely angulately produced; posterior tibiæ with two spines.

1942. **Pterilia ceylonensis**, *Stål, Berl. ent. Zeitschr.* iii, p. 322 (1859); *Melich. Hom. Faun. Ceylon*, p. 81, t. iii, f. 4, *a* (1903).

Fig 189.—*Pterilia ceylonensis.*

Head, pronotum, mesonotum, and tegmina olivaceous-brown; body beneath and legs pale testaceous-brown; vertex of head with the lateral areas piceous; face pale olivaceous, the central carination percurrent but less developed behind middle, the areas between the sublateral carinations and the outer edges sprinkled with piceous; clypeus with its whole central area piceous; legs annulated with piceous; tegmina with the costal margin much angularly excavate, the costal membrane subhyaline with the transverse veins olivaceous-brown, the disk with the basal area greenish, the remaining area more or less testaceous-brown, but with all the veins olivaceous-green.

Length incl. tegm. 10 to 12 millim.

Hab. Ceylon; Kandy (*Green*).

1943. **Pterilia signata**, sp. n.

Closely resembling *P. ceylonensis*, but differing in the following characters:—The margin of the costal membrane is considerably less angularly excavate; the central carination to face almost obsolete behind middle; tegmina (excluding costal membrane) concolorous, with some small but prominent black spots, of which the principal are three pairs arranged on each side of the median suture, and three more spots placed wide apart but in longitudinal series on the disk of each tegmen; legs annulated with piceous, the posterior femora nearly wholly piceous.

Length incl. tegm. 10 millim.

Hab. Ceylon; Kandy and Galagedara (*Green*).

1944. **Pterilia piceata**, sp. n.

Head with the vertex olivaceous, the anterior margin narrowly and the lateral areas broadly piceous; face much sprinkled and mottled with piceous, the carinations piceous, the central carination percurrent but less developed behind middle; clypeus piceous, its lateral margins ochraceous; pronotum and mesonotum piceous; legs piceous, slightly mottled at parts with ochraceous; tegmina piceous, an obscure costal spot before middle and a large elongate costal spot behind middle, which almost reaches apex, ochraceous, costal membrane hyaline with the transverse veins piceous, the venation of the tegmina is wholly piceous except on the posterior ochraceous costal spot, where it is virescent; the lateral elevations of the vertex of head are very prominent and subacute.

Length incl. tegm. 11 millim.

Hab. Ceylon; Kandy (*Green*).

Genus PTERYGOMA.

Pterygoma, *Melich. Hom. Faun. Ceylon*, p. 81 (1903).

Type, *P. nasuta*, Melich.

Distribution. Ceylon.

"Very like *Pterilia*, but distinguished from that genus by the front of the head, which is drawn out at an acute angle, before its apex there is an angularly broken or interrupted transverse ridge, a similar ridge at back of neck with the corners directed forward; the front angles of face are not produced into a point as in *Pterilia*; at base of mesonotum there is a transverse keel connecting the short lateral keels together; tegmina as in *Pterilia*, but the callosities in clavus absent; posterior tibiæ with two spines." (*Melichar.*)

1945. **Pterygoma nasuta**, *Melich. Hom. Faun. Ceylon*, p. 81, t. iii, f. 7 (1903).

"Dirty greenish-brown irregularly spotted with black, upper part of vertex as well as underside of projection of face thickly

sprinkled with black, becoming almost unicolorous black, on sides of face the black sprinklings coalesce into larger spots; a large black spot on each side of mesonotum; tegmina greenish-brown, veins brown to black, cells in places filled up with reddish-brown, the costal membrane hyaline, traversed by simple or in places forked veins, which as well as the costal margin itself are set with erect greenish hairs, similar erect bristles are also visible on the head; wings black, thickly irregularly reticulate; legs spotted and striped with black." (*Melichar.*)

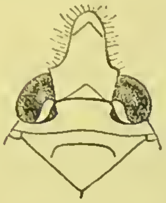

Fig. 190.
Pterygoma nasuta.

Length, ♂, 11 millim.
Hab. Ceylon.
I have not seen this species, and can only reproduce Dr. Melichar's description and figure.

1946. Gen. ? **pectinipennis**, *Guér.* (Issus) *Voy. Bélang. Ind. Orient.* p. 475 (1834); *Spin. Ann. Soc. Ent. Fr.* viii, p. 347 (1839); *Atkins.* (Issus ?) *J. A. S. Beng.* lv, p. 47 (1886).

"Luteous, spotted with black; head transverse, anteriorly trispinose, one obtuse point in front of each eye and one forming a prolongation of the vertex; tegmina anteriorly dilated, luteous or ochraceous-yellow, with some small tubercles and short transverse streaks black; wings brunneous; body beneath yellow variegated with black; legs flavescent; the anterior margin of the tegmina is spinose, it comprises a limbus outside the radius as broad as the external flap of the wing, about half a line, transparent, vitriform, or like an exceedingly fine plate of talc, furnished throughout with oblique veins (parallel to each other) contrasting in colour and substance with that of the limbus itself; these veins when the limbus is injured stand out like the teeth of a comb and give a peculiar appearance to the insect; the face is ascending, and is divided from the base to the upper margin into three facettes which form between them obtuse angles; the median increases from below upwards and reaches the vertex, and is divided by a longitudinal ridge which descends from above and loses itself towards the middle of the face; the two interior facettes rise a little higher than the median, but without converging above it, they bend outwards and in an acute and prominent point above the eyes; vertex broader than long, concave, margins gently raised, anterior bisinuate, posterior weakly emarginate; median lobe of pronotum broad, rounded." (*Spinola.*)
Length 10; exp. tegm. 23 millim.
Hab. Bengal.
I have not seen this species.

Genus EGROPA.

Egropa, *Melich. Hom. Faun. Ceylon*, p. 82 (1903).

Type, *E. inusta*, Melich.

Distribution. Ceylon.

"Vertex of head twice as broad as long, not passing the eyes, broadly rounded in front and divided by a sharp keel from base of face, posterior margin straight, lateral margins short, diverging in front; eyes semicircular, prominent; face rhomboidal, at clypeus half as broad as base, the lateral margins slightly curved inward, disk of face consisting of two planes inclined toward each other, the upper disk almost vertical and compressed in a semicircular arch, the lower disk almost horizontal, on a side view there is a distinct prominence at the middle of the upper facial margin; clypeus broad and shortly triangular; rostrum extending to middle coxæ; antennæ passing eyes, basal joint very short, second joint nearly three times as long as broad, cylindrical; pronotum rather longer than vertex, broader than head, anteriorly broadly rounded, posteriorly straight, at lateral margins obliquely truncated, disk arched with a shallow transverse depression; mesonotum one-third longer than pronotum, sharply triangular, above flat or slightly arched; tegmina like parchment, transversely arched and owing to the costal margin being slightly impressed at base and laminately overlapping inwardly is slightly directed downward, the tegmina are also rounded apically, veins in corium very indistinct; legs short and strong, posterior tibiæ unarmed." (*Melichar*).

Dr. Melichar has placed this genus at the end of the *Issinæ*, and states that it belongs to the "Subtrib. *Tettigometrini*," to which, however, no reference is given.

1947. **Egropa inusta**, *Melich. Hom. Faun. Ceylon*, p. 82, t. iii, f. 13, *a* (1903).

"Body olive-green; tegmina very finely sprinkled with red

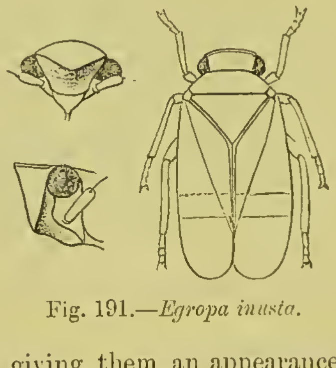

Fig. 191.—*Egropa inusta.*

dots and speckles, giving them an appearance of being coloured reddish-brown; front margin of vertex darker and behind it

extremely narrowly impressed, so that the margin of the face appears somewhat raised; face dirty green to brownish to above the protuberance, beneath pale green, both the zones sharply defined; antennæ yellowish-brown; eyes brown; tegmina finely wrinkled and punctured, provided with an indistinct pale transverse band situate a little beyond middle, and margined with a reddish line on each side, a rather paler spot with red speckles near base: wings smoky brown, traversed by dark veins; abdomen olive-green; legs greenish-yellow or dirty brownish-yellow, apices of spines to posterior tibiæ rusty-brown." (*Melichar.*)

"Length 5; breadth of tegm. $2\frac{1}{4}$ millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

I have not seen this species.

Subfamily X. RICANIINÆ.

Ricaniida, *Stål, Hem. Afr.* iv, pp. 131 & 219 (1866).

Ricaniina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 764; *Atkins. J. A. S. Beng.* lv, p. 49 (1886).

Ricaniidæ, *Melich. Monogr. Ann. Hofmus. Wien,* xiii, p. 197 (1898); *id. Hom. Faun. Ceylon,* p. 83 (1903).

Head broad or very broad, sometimes a little narrower than the pronotum; lateral margins of clypeus frequently not ridged; pronotum posteriorly roundly sinuate, either without carinations or with only a central one; mesonotum very large and long; tegmina flat, more or less ample, costal area dilated, costal membrane transversely veined or reticulated; posterior tibiæ spinose, basal joint of posterior tarsi somewhat short.

Dr. Melichar has monographed the *Ricaniinæ*, and has thus considerably aided our study of the subfamily; he, however, had not examined Walker's types, and has surcharged his synonymy with many distinct species described by that writer. Stål in 1862 examined Walker's types and published an excellent criticism on them, which was by some regarded as extreme; Melichar, however, without the opportunity of seeing those types, has gone farther, and in many cases too far.

Division *RICANIINARIA.*

Ricanini, *Melich. Ann. Hofmus. Wien,* xiii, p. 204 (1898).

Face broader than long, or as broad as long; sides of clypeus not ridged.

Synopsis of Genera.

A. Longitudinal venation to tegmina somewhat dense, the veins placed close together.
 a. Apical margin of tegmina longer than inner margin .... POCHAZIA, p. 370.

b. Apical margin of tegmina about as long as inner margin .... RICANIA, p. 375.
c. Apical margin of tegmina much shorter than inner margin .... PRIVESA, p. 386.
B. Longitudinal venation to tegmina less dense than in sect. A, the veins moderately well separated. [p. 382.
a. Four veins emitted from basal cell of tegmina. RICANOPTERA,
b. Three veins emitted from basal cell of tegmina. EURICANIA, p. 385.

Genus POCHAZIA.

Pochazia, *Amy. & Serv. Hém.* p. 528 (1843); *Stål, Rio Jan. Hem.* ii, p. 70 (1858); *Melich. Ann. Hofmus. Wien*, xiii, p. 206 (1898).

Type, *P. fasciata*, Fabr., an Ethiopian species.

Distribution. East Palæarctic, Ethiopian, Oriental, and Malayan Regions.

Head (including eyes) as wide as pronotum, vertex broad and narrow; face broader than long, with central and sublateral carinations, which frequently become evanescent posteriorly; clypeus not marginally ridged; pronotum narrow, centrally ridged; mesonotum very long, with five carinate lines, the central one straight, on each side of which is an inwardly and anteriorly curved line which converge somewhat closely together on anterior margin, and each outwardly bifurcating near middle in a straight longitudinal carination to, or near, anterior margin; tegmina strongly ampliated apically, broad, triangular, the apical longer than the inner margin, the longitudinal veins much furcate, two transverse lines formed by transverse veins on apical areas where the veins are close, numerous, longitudinal, and in many cases furcate, the interior longitudinal vein emitting many ramifications; posterior tibiæ with two spines.

A. *Tegmina and wings with pale medial transverse fasciæ.*

1948. **Pochazia interrupta,** *Walk. List Hom.* ii, p. 428 (1851), *nec J. Linn. Soc., Zool.* i, p. 91 (1856); *Stål* (Ricania), *Öfv. Vet.-Ak. Förh.* 1862, p. 491; *Atkins. J. A. S. Beng.* lv, p. 56 (1886); *Melich.* (excl. syn.) (Pochazia) *Ann. Hofmus. Wien*, xiii, p. 210, nec fig. (1898).

Body piceous-black; base of abdomen and legs more or less piceous-brown; tegmina piceous-brown, centrally crossed by a broad oblique white fascia, which extends from the inner margin for about three-fourths across tegmen and is then between its apex and the costal margin followed by a subquadrangular white spot, on extreme apical margin are some very minute and scarcely noticeable pale spots which extend for about one-third the length from posterior angle, two dark transverse lines formed by transverse veins on apical area, the innermost very irregular, and a

similar short curved discal line; posterior wings with a broad obliquely transverse white fascia near middle; pronotum with its margins ridged and with a central carination; mesonotum with five carinations, one central and percurrent and two discal and curved, the latter at about middle connected with anterior margin by a straight carinate line (these carinations are imperfectly shown in the figure); face with a central percurrent carination, and with a

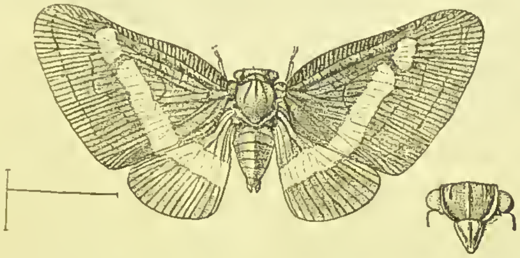

Fig. 192.—*Pochazia interrupta.*

short anterior sublateral carinate line on each side; posterior tibiæ with two strong spines; tegmina with the apical margin almost obliquely straight, apex not produced.

Length excl. tegm. $7\frac{1}{2}$ to 8; exp. tegm. 13 to 15 millim.

Hab. Malabar (*Brit. Mus.*).—Siamese Malay States (*Annandale & Robinson*).

Dr. Melichar (*supra*) has included the Celebesian *P. inclyta*, Walk., as a synonym of this species. This is incorrect; the Celebesian insect, apart from its different markings, may be distinguished by the distinct falcate apices of the tegmina, a character long since pointed out by Wallace as appertaining to Celebesian Rhopalocera. Melichar's figure also does not apply to Walker's typical form of the species.

1949. **Pochazia confusa**, sp. n.

Pochazia interrupta, *Melich.* (*nec Walk.*) *Ann. Hofmus. Wien*, xiii, t. ix, f. 15 (1898).

Body above and beneath piceous-black; legs piceous-brown, tibiæ a little paler; tegmina piceous-brown with the following white markings—a broad transverse fascia just beyond middle of tegmen commencing on inner margin and terminating at about one-fourth of its length from costal margin, above which and usually distinctly separated is a subtriangular spot also not reaching costal margin and preceded by a very small costal spot, and three or four elongate widely-separated spots on apical margin; wings piceous-brown with a broad central oblique transverse white fascia; mesonotum with five carinations, one central and percurrent, with an oblique discal carination on each side not reaching posterior margin, its apex straightly connected with the anterior margin; pronotum distinctly centrally carinate; face with

the central carination short, scarcely reaching middle; tegmina with the apical margins obliquely straight.

Var. Body and legs umber-brown; face with a large central piceous spot.

Length excl. tegm. 9; exp. tegm. 34 millim.

Hab. Assam; Margherita (*Doherty*). Burma; Karen Hills (*Doherty*).—Japan (*Brit. Mus.*)

The Japanese form constitutes the variety above described.

1950. **Pochazia angulata**, *Kirby* (Ricania), *J. Linn. Soc., Zool.* xxiv, p. 152 (1891); *Melich.* (Pochazia) *Ann. Hofmus. Wien*, xiii, p. 211 (1898); *id. Hom. Faun. Ceylon*, p. 83 (1903).

Head and thorax piceous-black, abdomen piceous-brown, legs testaceous; tegmina piceous-brown, crossed beyond middle by an oblique strongly angulated white fascia commencing near inner margin, very strongly angulated at a little beyond middle and then narrowly continued towards but not reaching apex, a transversely elongate, subangulate white spot on costal margin at about two-thirds from base; wings piceous-brown with a subangulate transverse white fascia extending across disk for about three-fourths from costal towards anal margin; face with a very fine central carination becoming evanescent posteriorly, and with very indistinct short sublateral carinations; mesonotum very elongate, the carinations as in preceding species; tegmina with the costal margin strongly convex on basal area, thence distinctly concave before apex, apical margin nearly obliquely straight, apex a little convexly angulate.

Length excl. tegm. 8; exp. tegm. 24 to 28 millim.

Hab. Ceylon; Pundaluoya and Peradeniya (*Green*).

B. *Tegmina and wings without medial transverse fasciæ; tegmina usually more or less palely maculate, sometimes with only a pale spot on costal margin.*

1951. **Pochazia fuscata**, *Fabr.* (Cicada) *Ent. Syst.* iv, p. 28 (1794); *id.* (Flata) *Ent. Syst. Suppl.* p. 518 (1798); *Stål* (Ricania, Pochazia), *Hem. Fabr.* ii, p. 104 (1879); *Atkins.* (Ricania) *J. A. S. Beng.* lv, p. 53 (1886).

Pœciloptera antica, *Westw. Griff. An. Kingd., Ins.* ii, p. 260, t. xc, f. 4, t. cxxxviii, f. 4 (1832).

Ricania obscura, *Guér. Voy. Bélang. Ind. Orient., Zool.* p. 466 (1834); *id.* (Euryptera) *tom. cit., Atlas*, t. iii, f. 6 (1834); *Stål* (Pochazia), *Öfv. Vet.-Ak. Förh.* 1865, p. 160; *Melich.* (*nec Fabr.*) *Ann. Hofmus. Wien*, 1898, p. 212; *Matsum.* (*nec Fabr.*) *Ent. Nachr.* xxvi. p. 211 (1900).

Head, face, and thorax above piceous-black; abdomen and legs testaceous, the latter paler; tegmina piceous-brown, with a pale flavescent elongate spot on costal margin at about two-thirds from base, sometimes the apical margin for about three-fourths of its

length from posterior angle towards apex narrowly pale flavescent divided by the dark veins; wings piceous-brown, unicolorous.

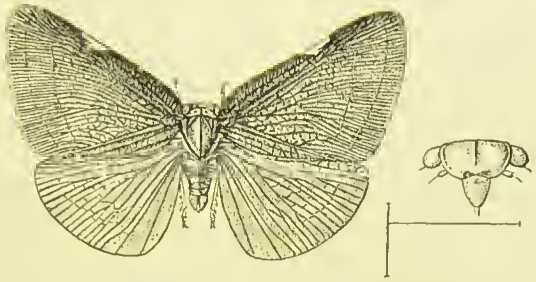

Fig. 193.—*Pochazia fuscata.*

Var. Tegmina unicolorous and with a dark olivaceous tint. Mesonotum carinated as in the preceding species; face with a distinct central carination, the short sublateral carinæ obsolete.

Length excl. tegm. 8 to 10; exp. tegm. 32 to 39 millim.

Hab. Tranquebar, Madras (*Coll. Dist.*). Burma; Karen Hills (*Doherty*). Tavoy (*Coll. Dist.*). Hsipaw (*de Nicéville*). Tenasserim; Myitta (*Doherty*).—Malay Peninsula. Sumatra, Borneo.

Melichar, followed by Matsumura, has confused the synonymy of this species. It was carefully described by Stål in his 'Hemiptera Fabriciana,' who added as a synonym his *Pochazia obscura*= *Ricania obscura*, Guér. As Guérin figured his species, there is no great problem in identification. As regards the *obscura*, Fabr., under which name Melichar has enumerated the species, Stål has also (*supra*) described the type, which was from Amboina, and gives this character for the tegmina: "ante medium et medio pallido conspersis et transversim pallido-lineolatis, fascia angusta inæquali pone medium sita membranaque costæ obscurius fuscis, margine hujas imo pallido, lineola transversa obliqua pone medium marginis costalis albidis," and also the expanse of the tegmina as only 15 millim. Subsequently Melichar (*supra*) placed the *fuscata*, Fabr., in the genus *Mindura*, and gives a figure of it, which appears to me to be quite inapplicable.

I have still a considerable impression that the species described by Guérin as *obscura* will ultimately prove to be distinct from that described by Fabricius as *fuscata*. I possess but few specimens of the latter compared with my series of the former, but, from what I have seen, *fuscata* has brown tegmina, costally spotted with pale flavescent, and more concavely sinuate before apex than is the case with the unicolorous olivaceously-tinted tegmina of Guérin's *obscura*. The *Pochazia fumata*, Amy. & Serv., from Java is possibly conspecific.

1952. **Pochazia striata**, *Kirby* (Ricania), *J. Linn. Soc., Zool.* xxiv, p. 153 (1891); *Melich.* (Pochazia) *Ann. Hofmus. Wien*, xiii, p. 215, t. ix, f. 4 (1898); *id. Hom. Faun. Ceylon*, p. 83 (1903).
Pochazia antigone, *Kirk. J. Nat. Hist. Soc. Bomb.* xiv, p. 52 (1902).

Head and pronotum chocolate-brown, face and abdomen testaceous, legs ochraceous; tegmina piceous-brown, costal and apical areas more or less piceous, and crossed by two narrow piceous fasciæ a little beyond middle, an elongate pale flavescent spot on costal margin near middle; wings more fuliginous, unicolorous.

Var. Tegmina with two whitish spots, one near middle of inner transverse fascia, the other near apex of outer transverse fascia.

Face with a short central carination which scarcely reaches middle; tegmina strongly concave before apex, which is obtusely angulate.

Length excl. tegm. 7 to 9; exp. tegm. 32 millim.

Hab. Ceylon; Kandy, Haragama (*Green*).

1953. **Pochazia guttifera**, *Walk. List Hom.* ii, p. 427 (1851); *Stål* (Ricania), *Öfv. Vet.-Ak. Förh.* 1862, p. 491; *Atkins. J. A. S. Beng.* lv, p. 57 (1886); *Melich.* (Pochazia) *Ann. Hofmus. Wien*, xiii, p. 216, t. ix, f. 22 (1898); *id. Hom. Faun. Ceylon*, p. 83 (1903).
Ricania stygia, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 766.

Head (including face) and thorax above piceous-black; abdomen piceous-brown, the segmental margins dull ochraceous; legs piceous-brown, the tibiæ ochraceous; tegmina piceous-brown, with a large pale flavescent elongate costal spot beyond middle and with three prominent white spots, one on disk near middle, the other two larger, somewhat elongate, and situate wide apart on apical margin; wings piceous-brown, unicolorous.

Var. *a*. Tegmina with the apical marginal spots entirely absent.

Var. *b*. Tegmina possessing the upper apical marginal spot, but with the lower marginal and discal spots absent.

Face with the central carination extending to its middle, the sublateral carinations distinct, slender, and extending to near apex; tegmina with the apical margin moderately rounded.

Length excl. tegm. 8 to 9; exp. tegm. 30 to 34 millim.

Hab. Sylhet (*Brit. Mus*). Sikhim; Mungphu (*Brit. Mus.*). Assam; Margherita (*Doherty*). Darjiling (*Coll. Dist.*). Burma; Karen Hills (*Doherty*). Upper Tenasserim (*Coll. Dist.*).

1954. **Pochazia atkinsoni**, sp. n.

Body piceous; legs brown, tibiæ ochraceous; tegmina pale piceous-brown, apical margin very broadly pale flavescent, and

with two large pale flavescent spots, one elongate on costal margin beyond middle, the other rounded on disk; wings pale piceous-brown, the posterior margin narrowly pale flavescent; face centrally a little gibbous, the central carination strong and almost percurrent, sublateral carinations obsolete; tegmina with the apical margins nearly obliquely straight, costal margin only moderately concave beyond middle.

Length excl. tegm. 11; exp. tegm. 37 millim.

Hab. Sikhim; Mungphu (*Atkinson Coll.*, *Brit. Mus.*).

Of this very fine and strikingly marked species I have seen only one specimen, which constitutes the type, and is in the collection of the British Museum.

1955. **Pochazia triangularis**, sp. n.

Head (including face), pronotum, and mesonotum pale umber-brown, abdomen above and body beneath and legs ochraceous; tegmina pale brownish-ochraceous, a transverse greyish-white spot on costal margin a little beyond middle; wings pale brownish-ochraceous; tegmina very short and broad, subtriangular, costal margin arched at base, a little concavely sinuate beyond middle, apical angle obtusely acute, apical margin nearly straight, much longer than inner and almost as long as costal margin; face with a central carination not extending beyond middle, sublateral carination obsolete.

Length excl. tegm. 8; exp. tegm. 23 millim.

Hab. Ceylon (*Atkinson Coll.*, *Brit. Mus.*).

Genus **RICANIA**.

Ricania, *Germ. Mag. Ent.* iii, p. 221 (1818); *Stål, Rio Jan. Hem.* ii, p. 70 (1858); *Hem. Afr.* iv, p. 221 (1866), part.; *Fieb. Rev. Mag. Zool.* (3) ii, p. 340 (1875); *Atkins. J. A. S. Beng.* lv, p. 50 (1886), part.; *Melich. Ann. Hofmus. Wien,* xiii, p. 218 (1898).

Type, *R. fenestrata*, Fabr.

Distribution. East Palæarctic, Ethiopian, Oriental, Malayan, Australasian, and Neotropical Regions.

Head (including eyes) as wide as pronotum, vertex broad and narrow; face broader than long, with central and sublateral carinations, the first usually evanescent posteriorly, the latter similarly evanescent but also sometimes practically obsolete; clypeus with the lateral margins not ridged; pronotum and mesonotum as in *Pochazia*; tegmina small, moderately ampliated, triangular, the apical margin as long or a little shorter than the inner margin, longitudinal veins furcate, the first and second near their apices, the third emitting many ramifications; two transverse lines on apical area formed by transverse veins; posterior tibiæ bispinose.

A. *Tegmina prominently palely maculate.*

1956. **Ricania fenestrata**, *Fabr.* (Cercopis) *Syst. Ent.* p. 688 (1775); *id. Hem. Fabr.* ii, p. 105 (1869); *Melich. Ann. Hofmus. Wien*, xiii, p. 222, t. ix, f. 13 (1898); *id. Hom. Faun. Ceylon*, p. 84 (1903).

Cicada hyalina, *Fabr. Syst. Ent. App.* p. 832 (1775); *id.* (Flata) *Syst. Rhyng.* p. 51 (1803); *Stål* (Ricania), *Öfv. Vet.-Ak. Förh.* 1862, p. 489; *Atkins.* (Ricania) *J. A. S. Beng.* lv, p. 51 (1886).
Flatoides orientis, *Walk. List Hom.* ii, p. 417 (1851).
Stoll, Cig. fig. 102.

Head (including face), pronotum, mesonotum, and sternum piceous-black; abdomen testaceous; coxæ, legs, and a transverse linear spot at apex of face pale testaceous; tegmina piceous-brown or piceous-black, with a large upper central discal spot united to the costal margin by a smaller spot (these spots sometimes distinctly

Fig. 194.—*Ricania fenestrata.*

separated) and two large elongate spots on apical margin very pale flavescent or greyish-white; wings a little paler than tegmina, with a pale subcostal central streak; face with a distinct almost percurrent central carination.

Length excl. tegm. 7; exp. tegm. 21 millim.

Hab. Trivandrum (*Coll. Dist.*). Ceylon; Kandy, Peradeniya (*Green*). Frequents *Aristolochia* (*E. E. Green*).

The darkest specimens I have seen are from Ceylon.

1957. **Ricania marginalis**, *Walk.* (Flatoides) *List Hom.* ii, p. 409 (1851).

Ricania speculum, *Melich.* (part.) *Ann. Hofmus. Wien*, xiii, p. 223 (1898).

Head (including face), pronotum, mesonotum, and sternum piceous-black; abdomen testaceous; coxæ, legs, and usually a transverse spot at apex of face pale testaceous; tegmina piceous-black, with a small central upper discal spot, a large subtriangular spot on costal margin beyond middle, two large elongate spots on apical margin (the lowermost marked with piceous), between these spots about three minute marginal spots, and a similar one near

apex, very pale flavescent or greyish-white; wings fuliginous, with a series of minute pale marginal spots not reaching anal area.

This species seems to vary in the amount of dark coloration contained in the lower pale marginal spot to tegmina.

Length excl. tegm. 6 to 7; exp. tegm. 20 to 24 millim.

Hab. Burma; Tavoy (*Coll. Dist.*). Tenasserim; Myitta (*Doherty*).—Borneo.

A rather common Bornean insect, incorrectly recorded by Walker as from Africa.

The *Flatoides guttatus*, Walk., from China, may prove to be a varietal form of this species.

1958. **Ricania speculum**, *Walk.* (Flatoides) *List Hom.* ii, p. 406 (1851); *Stål* (Ricania), *Öfv. Vet.-Ak. Förh.* 1870, p. 765; *Atkins. J. A. S. Beng.* lv, p. 54 (1886); *Melich.* (part.) *Ann. Hofmus. Wien,* xiii, p. 223 (1898).

Flatoides tenebrosus *et* perforatus, *Walk. List Hom.* ii. pp. 406 407 (1851).

Ricania malaya, *Stål, Öfv. Vet.-Ak. Förh.* 1854, p. 247.

Head (including face), pronotum, mesonotum, and sternum piceous-black; abdomen piceous-brown; legs pale testaceous; tegmina piceons-brown, with three spots beyond middle (inconstant in size)—two on upper disk and one on costal margin—and two elongate spots on costal margin very pale flavescent or greyish-white; wings fuliginous with the venation darker; eyes ochraceous; in some specimens the abdomen is apically prolonged in a mass of white waxy or cottony excrescence.

Var.. The two pale spots on apical margin of tegmina, more especially the lower one, spotted or suffused with piceous-brown; in a few specimens, also, of the three upper discal spots the two uppermost tend to coalesce.

Face with the central carination fine and posteriorly evanescent.

Length excl. tegm. 6 to 7; exp. tegm. 21 to 25 millim.

Hab. Assam; Margherita (*Doherty*). Nilgiri Hills (*Hampson*). Trivandrum (*Coll. Dist.*). Ceylon; Kandy (*Green*). Burma; Bhamo (*Fea*), Ruby Mines (*Doherty*). Tenasserim; Myitta (*Doherty*).—Borneo. Philippines. Java. Southern China.

Dr. Melichar, presumably without seeing the types, has included in the synonymy of this species *Flatoides guttatus*, Walk. (China), *marginalis*, Walk. (Borneo, *nec* Africa), *Ricania rufifrons*, Walk. (Waigiou), *specularis*, Walk. (Flores), *posterus*, Walk. (Borneo), and *Flatoides designata* (Siam), a course I am unable to follow.

1959. **Ricania mitescens**, sp. n.

Pronotum and mesonotum piceous (head mutilated in specimen described); abdomen above, body beneath, and legs pale testaceous, the legs a little paler; tegmina pale umber-brown with a large whitish costal spot at about two-thirds from base, and a broad

irregular whitish apical margin, not reaching apex and broken at about one-third from outer angle of posterior margin; wings fuliginous with the venation darker; the tegmina are convexly arched from base to beyond middle, and then slightly sinuate before apex; face indescribable, owing to mutilated head in type-specimen.

Length excl. tegm. 7?; exp. tegm. 26 millim.

Hab. Mergui (*Coll. Dist.*).

B. *Tegmina with pale transverse fasciæ, and often palely maculate.*

1960. **Ricania simulans**, *Walk.* (Pochazia) *List Hom.* ii, p. 431 (1851); *Stål* (Ricania), *Öfv. Vet.-Ak. Förh.* 1862, p. 491; *Atkins. J. A. S. Beng.* lv, p. 56 (1886); *Melich.* (excl. syn. *Ann. Hofmus. Wien*, xiii, p. 224, t. ix, f. 21 (1898).

Head, pronotum, abdomen, and body beneath pale testaceous-brown; legs ochraceous; margins of vertex of head, lateral margins of face, clypeus, posterior margin of mesonotum, and base of abdomen and anal appendage ochraceous; tegmina pale

Fig. 195.—*Ricania simulans.*

dull castaneous; base of costal margin, a basal patch, and greater part of claval area ochraceous; a triangular costal spot beyond middle, a transverse discal fascia before middle, and a broken irregular transverse fascia on apical area very pale flavescent, the veins on apical area prominent and the interspaces between them a little paler; wings pale fuliginous, apical areas broadly a little darker.

Length excl. tegm. $4\frac{1}{2}$; exp. tegm. $13\frac{1}{2}$ millim.

Hab. "North India" (*Warwick, Brit. Mus.*).

Dr. Melichar has included in the synonymy of this species *Flatoides episcopus*, Walk. (China and Japan), and *Ricania episcopalis*, Stål (China and Formosa), a course I cannot follow.

1961. **Ricania bicolorata**, sp. n.

Head (including face), sternum, pronotum, and mesonotum piceous-black; abdomen and legs testaceous; tegmina piceous-brown with a very broad transverse fascia, which is suddenly narrowed on costal margin, convex inwardly, and angulated

outwardly, greyish-white, two large spots of the same colour occupying nearly the whole of the apical margin, the uppermost almost connected with the apex of costal margin by a series of minute white spots; wings greyish-white, the outer margin broadly fuliginous, containing at extreme edge a series of minute transverse white spots; face with a central carination not extending beyond middle, sublateral carinations obsolete; abdomen above with transverse paler fasciæ.

Length excl. tegm. 7; exp. tegm. 21 millim.

Hab. Utakamand (*Brit. Mus.*).

1962. **Ricania zebra**, sp. n.

Body and legs pale tawny-brown, mesonotum sometimes piceous-brown; tegmina pale umber-brown, costal membrane dark umber-brown, its extreme edge ochraceous and inwardly dentated, a dark umber-brown transverse fascia margined on each side with greyish-white near middle, beyond this another transverse greyish-white fascia which is preceded and followed by a greyish-white line, extreme outer margin greyish-white, inwardly dentated, a small black subcostal spot at anterior end of the dark transverse fascia; wings pale ochraceous-brown; face with a distinct percurrent central carination, on each side of which are two other carinations, the outermost longest, more distinct, and curved.

Length excl. tegm. 4; exp. tegm. 14 millim.

Hab. "India" (*Brit. Mus.*). Assam: Margherita (*Atkinson Coll.*, *Brit. Mus.*).

C. *Tegmina unicolorous, with only a single, sometimes two, pale costal or subcostal spots.*

1963. **Ricania stupida**, *Walk.* (Flatoides) *Journ. Linn. Soc., Zool.* i, p. 157 (1857); *Melich.* (Ricania) *Ann. Hofmus. Wien*, xiii, p. 231, t. x, f. 24 (1898).

Ricania flabellum, *Noualh. Bull. Mus. Hist. Nat.* 1896, p. 256; *Melich. Ann. Hofmus. Wien*, 1898, p. 225, t. x, f. 10; *Noualh. & Mart.* '*Mission Pavie*,' iii, p. 181, t. xi, f. 11 (1904).

Body above umber-brown, beneath and legs ochraceous; tegmina umber-brown, the costal and apical areas distinctly darker, the basal third irrorated with small paler spots, a narrow transverse fascia crossing tegmen beyond middle marked by a distinct white spot at apex of radial area and again by a small ochraceous spot on costal margin, two transverse ochraceous lines on apical area, the innermost emitting a curved similar line directed inwardly, a distinct prominent black spot near apex; wings pale fuliginous, the venation darker, and with the interspaces between the veins on apical area with longitudinal obscure greyish fasciæ; face with very fine but distinct central and sublateral carinate lines.

Length excl. tegm. 5; exp. tegm. $19\frac{1}{2}$ to 20 millim.

Hab. Assam and Burma (*fide Melichar*). Ceylon (*Brit. Mus.*). —Cambodia. Java. Borneo. Philippines.

Dr. Melichar's figure of *R. stupida* does not represent the typical form.

1964. **Ricania stigma,** *Walk.* (Flatoides) *List Hom.* ii, p. 410 (1851).

Ricania albomaculata, *Uhler, Proc. U.S. Nat. Mus.* xix, p. 277 (1896).

Ricania simalata, *Melich. Ann. Hofmus. Wien*, xiii, p. 237 (1898).

Pochazia obscura, *Melich.* (part.) *Ann. Hofmus. Wien*, xiii, p. 212 (1898); *Matsum.* (part.) *Ent. Nachricht.* xxvi. p. 211 (1900).

Head, pronotum, and mesonotum brownish-ochraceous or piceous-brown, abdomen testaceous, legs pale ochraceous; tegmina brownish-ochraceous or piceous-brown, disk slightly irrorated with small pale spots, a large pale flavescent or greyish-white spot on costal margin a little beyond middle, and a small black spot near apex; wings pale fuliginous, the venation darker.

Var. *a.* Body uniformly pale brownish-ochraceous.

Var. *b.* Body and tegmina uniformly pale brownish-ochraceous, the latter with the usual pale costal and black apical spots.

Var. *c.* Tegmina resembling typical form in colour, but with the black apical spot absent.

Face with a central carination becoming evanescent posteriorly, and with a very short sublateral carination on each side.

Length excl. tegm. 7 to 9; exp. tegm. 18 to 26 millim.

Hab. Upper Assam (*Ind. Mus.*). Nicobar Islds., Camorta (*Coll. Dist.*). Tenasserim; Myitta (*Doherty*).—Borneo. Japan.

This seems to be an abundant species in Japan, where it represents the darkest form of the species, and I possess a long series collected by Mr. Lewis in that country. In Japanese examples the black apical spot to the tegmina is either very obsolete or entirely absent. The type of *R. similata*, Melich., is in my own collection. The very pale form (var. *b*) is from the Nicobars.

1965. **Ricania pulverosa,** *Stål, Öfv. Vet.-Ak. Förh.* xx. p. 162 (1865); *Atkins. J. A. S. Beng.* lv, p. 61 (1886); *Melich. Ann. Hofmus. Wien,* xiii, p. 240, t. xi, f. 14 (1898).

Head (including face), pronotum, and mesonotum piceous-black; body beneath and legs testaceous; tegmina piceous-brown, the costal margin ochraceous with transverse black spots from base to a little beyond middle, where there is a large pale flavescent or greyish-white spot marked by two central transverse black lines, two small similarly coloured spots near apex, where there is also a minute costal black spot; wings fuliginous.

Var. Body and tegmina umber-brown; disk of tegmina with two obscure transverse piceous fasciæ.

Face with an anterior transverse ridge, to which are attached a central and two sublateral carinations which scarcely extend beyond middle.

Length excl. tegm. 4 to 7; exp. tegm. 14 to 20 millim.

Hab. Assam; Khási Hills (*Coll. Dist.*), Margherita (*Doherty*). Burma; Karennee (*fide Melichar*). Tenasserim; Myitta (*Doherty*). —Cambodia.

Melichar has placed the *Flatoides nivisignatus*, Walk., as a synonym of this species; it is, however, perfectly distinct.

1966. **Ricania distincta**, *Melich. Hom. Faun. Ceylon*, p. 84, t. ii, f. 7 (1903).

Head (including face), pronotum, and mesonotum piceous-black, head and pronotum sometimes castaneous; abdomen piceous, the segmental margins flavescent; sternum (more or less) and the legs ochraceous; tegmina pale piceous-brown, with a subquadrate costal pale flavescent or greyish-white spot beyond middle, the costal membrane distinctly darker in hue and the apical area also moderately infuscate; wings pale fuliginous; face with a very distinct central carination not extending beyond middle, sublateral carination very short and obsolete.

Length excl. tegm. 5½ to 7; exp. tegm. 14 to 16 millim.

Hab. Ceylon; Peradeniya, Kandy (*Green*).

Allied to *R. nivisignata*, Walk.

D. *Tegmina unicolorous, without pale costal spots, sometimes with transverse darker fasciæ.*

1967. **Ricania apicalis**, *Walk.* (Pochazia) *List Hom.* ii, p. 431 (1851); *Stål* (Ricania), *Öfv. Vet.-Ak. Förh.* 1862, p. 491; *Atkins. J. A. S. Beng.* lv. p. 55 (1886); *Melich. Ann. Hofmus. Wien.* xiii, p. 229 (1898).

Pronotum and mesonotum more or less piceous-black; head, abdomen above, body beneath, and legs pale testaceous, the legs a little paler; tegmina pale brownish-ochraceous with a somewhat bronzy tint, a small black spot near apex, from which to near outer angle of inner margin there is a more or less well-defined dark fascia, between the transverse veins to costal membrane the colour is a little darker, making the veins appear prominent, and from end of radial area to posterior margin is a transverse darker fascia, sometimes very ill-defined; wings pale ochraceous, the posterior margin distinctly darker; face with well-defined central and sublateral carinations, the first practically percurrent, the latter not extending beyond middle.

Length excl. tegm. 5; exp. tegm. 17 millim.

Hab. Assam; Margherita (*Doherty*). Sikhim (*fide Atkinson*). Govegaon (*Jayaker*, *Brit. Mus.*).

1968. **Ricania spoliata**, *Melich. Ann. Hofmus. Wien*, 1898, p. 234, t. x, f. 21; *id.* (Ricania (Recanula)) *Hom. Faun. Ceylon*, p. 84 (1903).

"Body black, face and clypeus yellowish-brown, frontal keel distinct, lateral keels semicircular; pronotum and mesonotum black, the latter with the usual carinations; tegmina brown with two yellowish transverse fasciæ, between which is a black yellowish-margined spot, the first fascia before middle has a sharp zigzag border and is sprinkled with cretaceous scales, which, moreover, form a transverse line, towards the outer side this fascia is evanescent, the second fascia beyond middle consists of two large irregular spots, a white oblique streak at end of radial area, angular yellow spots on costal margin at end of transverse veins, on apical margin the yellow spots are minute and rounded; wings very pale fuliginous, darker at posterior margin; legs yellowish-brown." (*Melichar.*)

"Length excl. tegm. 5; exp. tegm. 18 millim."

Hab. Ceylon (*fide Melichar*).

1969. **Ricania fumosa**, *Walk.* (Flatoides) *List Hom.* ii, p. 414 (1851); *Stål* (Ricania), *Öfv. Vet.-Ak. Förh.* 1862, p. 491; *Atkins. J. A. S. Beng.* lv, p. 55 (1886); *Melich. Ann. Hofmus. Wien*, xiii, p. 230 (1898).

Ricania proxima, *Melich. Ann. Hofmus. Wien*, xiii, p. 226, t. xi, f. 22 (1898).

Body ferruginous; mesonotum piceous; legs pale testaceous; tegmina uniformly piceous-brown, the venation a little darker and prominent; wings a little paler than tegmina; tegmina short and broad, their greatest breadth only a little shorter than their length, costal margin distinctly sinuate beyond middle, apex broadly rounded; face tricarinate, a central and two sublateral carinations which do not extend beyond middle.

Length excl. tegm. $3\frac{1}{2}$; exp. tegm. $12\frac{1}{2}$ millim.

Hab. Assam; Margherita (*Atkinson Coll.*, *Brit. Mus.*).—Siam. South Sumatra (*Coll. Dist.*). Java, Celebes.

This small species was only known to Walker by an unlocalized type in the British Museum. Atkinson appears to have correctly identified an Assamese specimen as representing it.

Genus **RICANOPTERA**.

Ricanoptera, *Melich. Ann. Hofmus. Wien*, xiii, p. 253 (1898).

Type, *R. inculta*, Melich.

Distribution. Ethiopian, Oriental, Malayan, and Australasian Regions.

Head, pronotum, and mesonotum generally as in the two preceding genera; tegmina more elliptical, apical longer than the inner margin, first and second longitudinal veins emitted from a common stalk at upper end of basal cell, third strongly

forked at a short distance from base, an inwardly curved line crossing disk before middle and formed by transverse veins, two transverse lines on apical areas also formed by transverse veins, numerous transverse veins in clavus; posterior tibiæ with two spines.

1970. **Ricanoptera inculta**, *Melich. Ann. Hofmus. Wien*, xiii, p. 254, t. xiii, f. 1 (1898).

"Body reddish or rusty-brown, surface of thorax sometimes yellowish-brown; face narrowed towards clypeus, carinations very indistinct; pronotum centrally carinate; mesonotum with three longitudinal carinations bifurcate anteriorly, the inner bifurcation not connected with the inner carination; tegmina and wings hyaline, transparent, slightly discoloured with vinous-yellow and with brown speckles, longitudinal veins placed wide apart, the transverse veins between them on disk few and irregularly placed, forming two transverse lines before apical margin, the outer one parallel to margin, the inner one waved, on disk an angulated line formed of transverse veins with the apex turned towards base; abdomen yellow, brownish above; legs pale yellow; tips of the spines black." (*Melichar.*)

Length excl. tegm. 8 to 9; exp. tegm. 24 to 28 millim.

Hab. Assam; Margherita (*Doherty*). Great Nicobar (*fide Melichar*).

1971. **Ricanoptera mellerborgi**, *Stål* (Ricania), *Öfv. Vet.-Ak. Förh.* 1854, p. 247; *Atkins. J. A. S. Beng.* lv, p. 52 (1886); *Melich. Ann. Hofmus. Wien*, xiii, p. 255, t. x, f. 15 (1898).
Flata fenestrata, *Fabr. Syst. Rhyng.* p. 51 (1803); *Atkins.* (Ricania) *J. A. S. Beng.* lv, p. 51 (1886).
Flatoides discalis, *Walk. J. Linn. Soc., Zool.* i, p. 89 (1857).
Ricania fabricii, *Stål, Hem. Fabr.* ii, p. 104 (1869).

Body and legs testaceous-brown, darker above than beneath; tegmina hyaline, the whole basal and marginal areas fuscous-brown, extreme edges of costal and apical margins with minute flavescent spots, two hyaline spots on costal margin beyond middle, and usually three, sometimes only two, on apical margin; wings hyaline, the venation piceous-brown and the outer margins broadly fuscous. (This is the form described by Walker as *discalis* and which is here figured.)

Fig. 196.—*Ricanoptera mellerborgi.*

Tegmina hyaline, minute flavescent marginal spots as in form

discalis, Walk., but with the fuscous-brown areas much reduced and broken, the hyaline space being thus much enlarged both inwardly and outwardly and on basal area crossed by a narrow oblique fuscous-brown fascia; face with a central and two sublateral carinations, becoming more or less evanescent posteriorly.

Length excl. tegm. 5½ to 6; exp. tegm. 18 millim.

Hab. Burma (*fide Atkinson*). Tenasserim; Myitta (*Doherty*). Mergui (*Coll. Dist.*).—Malay Peninsula. Java. Sumatra. Borneo.

1972. **Ricanoptera polita**, *Melich. Ann. Hofmus. Wien*, xiii, p. 256, t. ix, f. 25 (1898).

"Body reddish-brown; face, abdomen, and legs paler; pronotum and mesonotum as in *R. mellerborgi*; tegmina hyaline, vitreous with a yellow-brown pattern consisting of two transverse fasciæ, of which the subapical one emits two processes to the apical margin, thus defining three large rounded hyaline marginal spots, the first of these near apex is larger than that near the posterior angle, four rounded hyaline spots on costal margin; wings vitreous, posterior margin slightly tinged with brown. This species resembles *R. mellerborgi*, but is larger, the costal margin flatly arched, before the apex almost slightly sinuate, less rounded at apex, veins of tegmina coloured with brown in vitreous portions, whereas they are white in *R. mellerborgi*; also the white dots at the apices of veins on apical margin are wanting, and there are only minute marginal spots to be seen in the brown coloration on apical margin." (*Melichar.*)

Length excl. tegm. 7; exp. tegm. 23 millim.

Hab. Little Nicobar (*fide Melichar*).

1973. **Ricanoptera opaca**, sp. n.

Body piceous; face, clypeus, and legs dull brownish-testaceous: vertex of head mottled with brownish-ochraceous; tegmina opaque, piceous or piceous-brown, costal margin spotted with ochraceous, a small subquadrangular white spot at end of radial area, on disk a large greyish-white irregular spot followed by mottlings of the same colour which extend to near base and along the inner area, on the upper outer area of the large spot is a very distinct rounded black spot, the two transverse lines on apical area are sometimes brownish-ochraceous, and their interspace much suffused with the same colour, in other specimens the apical area is piceous and the transverse lines faintly visible; wings pale fuliginous, sometimes a little paler near base and on anal area: face with the carinations fine but distinct.

Length excl. tegm. 4½; exp. tegm. 15 millim.

Hab. Ceylon; Madulsima (*Green*).

Genus EURICANIA.

Euricania, *Melich. Ann. Hofmus. Wien*, xiii, p. 258 (1898).

Type, *E. ocellus*, Walk.

Distribution. East Palæarctic, Oriental, Malayan, and Australasian Regions.

Head, pronotum, and mesonotum generally as in the preceding genera; face with the sublateral carinæ very short; tegmina somewhat elliptical, first longitudinal vein furcate before middle. second and third very short, arising from a common stem at lower end of basal cell, both shortly after their emergence connected by a transverse vein, transverse veins on disk enclosing a number of irregular cellular areas on basal half, two transverse lines formed by transverse veins beyond middle, the innermost much angularly waved; wings short, with two transverse veins a little beyond middle, several of the longitudinal veins forked near apices; posterior tibiæ with two spines.

1974. **Euricania ocellus**, *Walk.* (Pochazia) *List Hom.* ii, p. 429 (1851); *Atkins.* (Ricania) *J. A. S. Beng.* lv, p. 55 (1886), part.; *Melich.* (Euricania) *Ann. Hofmus. Wien*, xiii, p. 260, t. ix, f. 24 (1898).

Flatoides facialis, *Walk. List Hom. Suppl.* 1858, p. 100; *Melich.* (Euricania) *Ann. Hofmus. Wien*, xiii, p. 260 (1898).

Head, pronotum, mesonotum, and sternum piceous-black; abdomen above piceous-brown, abdomen beneath and legs ochraceous; lateral margins of face and the whole of clypeus ochraceous; tegmina hyaline, costal area (maculately broken beyond middle and near apex), apical and inner margins, a subapical transverse line, a short broad fascia a little beyond middle (only extending about half across tegmen and containing a pale hyaline spot), preceded by a slightly curved linear suffusion, piceous-brown; wings hyaline, the venation and posterior margin piceous-brown; face with a central carination becoming a little evanescent posteriorly.

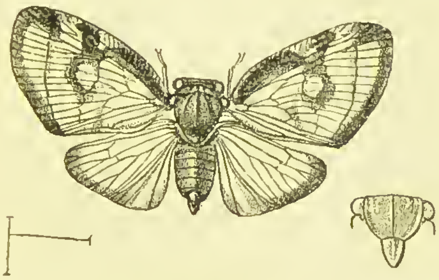

Fig. 197.—*Euricania ocellus.*

Length excl. tegm. 5½; exp. tegm. 20 to 22 millim.

Hab. Assam; Margherita (*Doherty*). Sikhim (*fide Melichar*).—China (*Brit. Mus.*). Japan.

Genus PRIVESA.

Privesa, *Stål, Rio Jan. Hem.* ii, p. 70 (1858); *Melich. Ann. Hofmus. Wien*, xiii, p. 282 (1898).
Dechitus, *Walk. Journ. Ent.* i, p. 311 (1862).

Type, *P. lævifrons*, Stål, from Madagascar and Mauritius.

Distribution. Ethiopian, Oriental, and Australasian Regions.

Head (including eyes) about as broad as pronotum, anterior margin rounded in front of eyes and with a transverse subconvex ridge between eyes; face broader than long with a central carination; clypeus centrally ridged; pronotum centrally ridged; mesonotum with three longitudinal carinations, the lateral ones anteriorly inwardly forked; tegmina near apex or near apical area with a transverse series of irregular transverse veins; longitudinal veins emitted from the basal cell, the third furcate; posterior tibiæ bispinose.

1975. **Privesa delecta**, *Melich. Ann. Hofmus. Wien*, xiii, p. 285 (1898).

"Face narrowed to clypeus, yellowish-white, smoothly flat, middle ridge distinct, almost extending to apex, lateral ridges indistinct, a narrow transverse brown fascia at upper frontal margin, at suture of face and clypeus is an indistinct brown central spot and on both sides of it another brown spot; clypeus yellowish-white with a central ridge; pronotum with a longitudinal ridge, on each side of which is a compressed point; mesonotum rusty-brown, sometimes paler on disk, with three longitudinal ridges, the lateral ones shortly forked in front, the inner fork united with the central ridge before anterior margin; tegmina pale yellowish, with blackish-brown spots and three hyaline costal spots, the first and third almost of equal size, the central one largest; apical margin sprinkled with very small pale speckles; wings vitreous, posterior margin fuliginous; sternum and legs pale yellowish." (*Melichar.*)

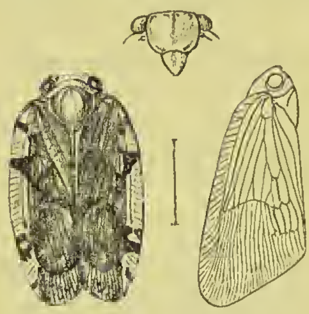

Fig. 198.—*Privesa delecta.*

"Length excl. tegm. 6½; exp. tegm. 19 millim."

Hab. Bombay (*Paris Mus.*).

I am indebted to Prof. Bouvier, of the Paris Museum, for the opportunity of figuring this species.

1976. **Privesa confinis**, sp. n.

Body and legs pale castaneous-brown; mesonotum more or less suffused with piceous, sometimes principally denoted by a large

central and sublateral spot, in other specimens nearly completely piceous; tegmina ochraceous, with two subbasal costal spots, a large triangular fascia commencing about middle of costal margin, its apex extending to about middle of tegmen, the apical margin, outer margin of basal cell, and a curved discal line on basal area umber-brown, the basal interspace of the brown triangular fascia appears as a large greyish costal spot, and the area between the triangular fascia and the apical margin is also greyish with the veins brown, the apical margin is also inwardly traversed by a sinuated greyish transverse line; wings very pale fuliginous with the venation fuscous; the basal ridge of the face is distinctly visible above the anterior margin of the vertex; face unicolorous pale castaneous, obscurely finely obliquely wrinkled, the carinations distinctly prominent, the central one evanescent posteriorly, the sublateral ones very short; clypeus a little paler, with two central longitudinal castaneous fasciæ.

Length excl. tegm. 5; exp. tegm. 16 millim.

Hab. Sind Valley (*Stoliczka*).

Division *NOGODINIARIA.*

Nogodini, *Melich. Ann. Hofmus. Wien*, xiii, p. 204 (1898).

Face distinctly longer than broad, or as broad as long, the sides of the clypeus always ridged.

Synopsis of Genera.

A. Head (including eyes) as broad as, or very slightly narrower than, pronotum.
  a. Tegmina ampliate, not more than twice as long as broad.
    a. Tegmina with three veins from near upper end of basal cell; claval vein terminating near to, or a little beyond, middle of clavus. — DETYA, p. 387.
    b. Tegmina with two veins from near upper end of basal cell; claval vein terminating before middle of clavus .... VARCIA, p. 389.
  b. Tegmina more than twice as long as broad.
    a. Pronotum very convexly produced anteriorly, almost reaching anterior margin of eyes .. PISACHA, p. 391.
    b. Pronotum only moderately convexly produced anteriorly, scarcely extending beyond base of eyes .... PUCINA, p. 392.
B. Head (including eyes) distinctly narrower than pronotum .... GÆTULIA, p. 394.

Genus DETYA, nov.

Type, *D. fusconebulosa*, Dist.

Distribution. Oriental and Malayan Regions.

Head (including eyes) about as broad or very slightly narrower

than pronotum; vertex much broader than long, the margins ridged; face nearly twice as long as broad, slightly ampliated and rounded towards clypeus, which is moderately ridged centrally and laterally; eyes placed obliquely; pronotum narrow, convexly produced between eyes, its posterior margin concave; mesonotum large, long, tricarinate, the lateral carinations anteriorly incurved and nearly meeting near anterior margin; posterior tibiæ with three and sometimes with a small fourth subbasal spine; tegmina with the basal cell emitting three veins near its upper end, claval vein united to posterior claval margin near or a little beyond middle, costal membrane obliquely transversely veined, beyond middle there are a number of transverse veins forming somewhat short cells, a continuous subapical marginal line formed of transverse veins on basal area, and above clavus four longitudinal cells, the second with a transverse vein near its apex; wings with the second and third longitudinal veins emitted from a common stem, a few transverse veins beyond middle, and the apices of the veins on apical margin furcate.

1977. **Detya fusconebulosa**, sp. n.

Body and legs ochraceous; face with the lateral margins, a spot on each side of base, two spots before clypeus, and a double

Fig. 199.—*Detya fusconebulosa.*

oblique discal series of minute spots black, a brown linear submarginal spot on each side beyond middle; clypeus with black margins and a central piceous line, neither of which reach apex: pronotum with two central piceous spots; mesonotum with two broad central fasciæ, outwardly notched posteriorly, and an angulated spot on each anterior lateral area piceous; tegmina hyaline, the venation fuscous-brown, costal membrane with three large transverse piceous spots, the first near base, the other two (closer together) beyond middle, the transverse veins at apices of longitudinal veins infuscate, a very narrow transverse fascia crossing tegmen beyond middle, the apical margin somewhat broadly and irregularly and the inner margin more narrowly fuscous-brown, the apical margin is much broken and thus encloses several large

hyaline spots; wings hyaline, the venation and outer margin narrowly fuscous-brown.

Length excl. tegm. 9½ to 10; exp. tegm. 30 to 32 millim.

Hab. Burma; Karen Hills (*Doherty*). Tenasserim; Myitta (*Doherty*).—Borneo.

Genus VARCIA.

Varcia, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 769; *Melich. Ann. Hofmus. Wien*, xiii, p. 315 (1898).

Type, *V. nigrovittata*, Stål, from the Philippines.

Distribution. Neotropical, Oriental, and Malayan Regions.

This genus possesses most of the general characters of the genus *Sassula*, from which it principally differs by the venation of the tegmina, only two longitudinal veins being emitted from upper end of basal cell, and these wide apart, the transverse veins to the costal membrane are wider apart and less oblique, and the claval veiu unites with the posterior claval margin before middle, and is united a little before its apex with the claval suture by a transverse vein.

1978. **Varcia hemerobii,** *Walk.* (Ricania) *List Hom.* ii, p. 425 (1851); *Stål* (Mindura), *Öfv. Vet.-Ak. Förh.* 1862, p. 491; *Atkins. J. A. S. Beng.* lv, p. 62 (1886); *Melich. Ann. Hofmus. Wien*, xiii, p. 303 (1898); *Kirk.* (Sassula) *Entomologist*, xxxiii, p. 10 (1900); *Melich. Hom. Faun. Ceylon*, p. 85 (1903).

Body and legs pale brownish-ochraceous; face somewhat creamy-white, with two oblique discal black macular fasciæ and

Fig. 200.—*Varcia hemerobii.*

with the basal area more or less suffused with piceous, three small elongate brown spots before clypeus; clypeus with two narrow longitudinal brown fasciæ, between which there is a shorter discal brown line; pronotum more or less suffused with pale brownish, sometimes with two oblique pale brownish fasciæ; mesonotum with two discal fasciæ meeting anteriorly and usually two spots on each lateral area piceous; abdomen above with transverse piceous fasciæ; tegmina hyaline, the venation fuscous-brown, some of the

transverse veins to costal membrane pale ochraceous and a distinct ochraceous spot a little beyond middle, on each side of which the colour is distinctly fuscous-brown and outwardly continued round apex along apical margin to near posterior angle as a marginal fascia broken near apex by a yellowish spot, a submarginal brown spot near middle of apical margin and some suffusions on inner marginal area of the same colour; wings hyaline, the venation and a very narrow marginal border fuscous-brown.

Length excl. tegm. 10; exp. tegm. 30 to 32 millim.

Hab. Malabar (*Coll. Dist.*). Ceylon; Kandy (*Green*). Tenasserim; Myitta (*Doherty*).—Malay Peninsula. Borneo. Talaut.

1979. **Varcia greeni,** *Kirby* (Nogodina), *J. Linn. Soc., Zool.* xxiv, p. 158, t. v, f. 15 (1891); *Melich.* (Varcia) *Ann. Hofmus. Wien*, xiii, p. 320 (1898); *id.* (Sassula) *Hom. Faun. Ceylon*, p. 85 (1903).

Body and legs ochraceous; face very pale ochraceous, its lateral margins narrowly black, rather more than basal half pale fuscous-brown, where the sublateral margins, a central and two oblique discal lines are very pale ochraceous; clypeus of the same colour with a central piceous line, its lateral margins narrowly black; vertex anteriorly and sublaterally narrowly piceous; pronotum with two oblique fasciæ transversely connected at base piceous; mesonotum with two broad longitudinal piceous fasciæ prominently outwardly notched a little behind middle and a piceous spot near each anterior angle; abdomen above with transverse central piceous spots, some sternal spots and a lateral line on each side of abdomen piceous; tegmina hyaline, the venation fuscous-brown, a spot at base of costal area, the inner vein to costal membrane, and the claval suture more or less ochraceous, a large piceous stigmatical spot containing a small pale ochraceous spot, a spot at apex and the apical and inner margins fuscous-brown, the apical margin prolonged inwardly near middle and the inner margin near outer angle; wings hyaline, the venation and their outer margins (not reaching anal area) fuscous-brown.

Length excl. tegm. $8\frac{1}{2}$ to 9; exp. tegm. 25 to 28 millim.

Hab. Ceylon; Deltota, Peradeniya (*Green*).

1980. **Varcia kandyiana,** sp. n.

Body and legs brownish-ochraceous; face ochraceous with the lateral margins narrowly black, the ridges prominent, the lateral areas somewhat obscurely linearly suffused with very pale brown; clypeus with the lateral margins narrowly black, but becoming evanescent towards apex and with a central piceous carinate line; vertex ochraceous with the margins narrowly black; pronotum and mesonotum brownish-ochraceous, both with a central ochraceous line, the latter with two curved longitudinal black fasciæ which almost meet near anterior margin; abdomen above with transverse black fasciæ; tegmina hyaline, the venation piceous,

crossed beyond middle by a continuous transverse fascia, between it and apical margin a broken macular transverse fascia, and the apical margin (excluding apex) fuscous-brown, two piceous spots enclosing a small brownish-ochraceous space beyond middle of costal area, a fuscous marginal spot at apex, and a piceous spot beyond middle of claval area; wings hyaline, the venation and outer margin (not reaching anal area) fuscous-brown.

Length excl. tegm. $8\frac{1}{2}$ to 9; exp. tegm. 27 millim.

Hab. Ceylon; Kandy (*Green*).

1981. **Varcia similata**, *Melich.* (Sassula) *Hom. Faun. Ceylon*, p. 86 (1903).

"Very like *S. kirbyi*, Melich. (from Cochin China), only differing because the face with the exception of keels (which are pale yellow) is entirely brown-coloured with two pale spots between marginal and lateral keels, the upper one small, the lower one large and somewhat round, on the outer side of lateral keels a row of dark dots are observable which are lost in the ground-colour; margins of front and clypeus black, on middle of central keel of clypeus is a black dash and on side of head a large brown spot, wanting in *S. kirbyi*; tegmina vitreous, apical margins extremely faintly coloured with pale yellow, a dark spot in apical area of clavus and two black marginal spots bounding the pale yellow stigma on the costal margin, costal membrane broader than costal cell, traversed by 15–16 transverse veins, in costal cell two yellowish-white transverse veins, remaining veins black; in clavus there is one transverse vein, several transverse veins near apex, and sometimes a transverse vein joining both branches of the fork which is inconstant; wings slightly darkly bordered posteriorly, a forked vein in anal area; abdomen and legs as in *S. kirbyi*." (*Melichar*.)

"Length, ♀, 15; exp. tegm. 24 millim.'

Hab. Ceylon; Henaratgoda (*fide Melichar*).

I have had no opportunity of seeing this species.

Genus **PISACHA**, nov.

Type, *P. naga*, Dist.

Distribution. British India.

Head (including eyes) about as wide as pronotum; eyes rotundately elongate, placed behind vertex and on each side of the protruding pronotum; vertex broader than long, its lateral margins laminately ridged; face much longer than broad, its basal margin centrally angularly sinuate, moderately pronounced central and sublateral longitudinal ridges becoming evanescent posteriorly, and with two central curved contiguous carinæ before clypeus which is centrally ridged; pronotum strongly convexly produced in front, its posterior margin strongly concave; pronotum long,

with three central carinæ, the central one faint, the two lateral ones strong, curved anteriorly and meeting before anterior margin; legs strongly sulcate, posterior tibiæ with two spines near apex; tegmina more than twice as long as broad, apical margin rounded, costal membrane narrow with numerous transverse veins and connected with the upper longitudinal vein from about middle by six or seven transverse veins, first and second longitudinal veins with a common origin at upper end of cell, third emitted immediately below them, third strongly bifurcate, its upper fork connected with second vein by a transverse vein, on apical area the veins are reticulate, terminating at a broad apical margin, where the veins are longitudinal, somewhat numerous, and many forked; clavus with six or seven transverse veins between the suture and its longitudinal vein; wings about as broad but a little shorter than tegmina.

1982. **Pisacha naga**, sp. n.

Body and legs dark brownish-ochraceous; face with the ridges a little paler, the lateral margins and two discal oblique and posteriorly united lines black; clypeus with a piceous fascia on each side of central ridge; vertex testaceous, with the lateral margins and a central fascia pale ochraceous; pronotum testaceous, its lateral margins and a central fascia pale ochraceous, somewhat narrowly piceous at anterior margin; mesonotum testaceous between the carinations, of which the central one is pale ochraceous and the lateral ones black; abdomen above with darker transverse fasciæ; tegmina hyaline, the venation piceous-brown, a large subtriangular oblique spot near apex extending from costal margin to about middle of tegmen piceous, apical margin (excluding apex) broadly fuscous-brown, inwardly piceous-brown; wings hyaline, the venation and posterior margin (not reaching anal area) fuscous-brown.

Fig. 201.—*Pisacha naga.*

Length excl. tegm. 10; exp. tegm. 28 millim.

Hab. Assam; Nágá Hills (*Doherty*).

Genus **PUCINA.**

Pucina, *Stål, Hem. Afr.* iv, p. 221 (1886); *id. Berl. ent. Zeitschr.* x, p. 393 (1866); *Atkins. J. A. S. Beng.* lv, p. 63 (1886); *Melich. Ann. Hofmus. Wien,* xiii, p. 329 (1898).

Type, *P. pellucida*, Guér.

Distribution. Oriental and Australasian Regions.

"Clavus without transverse veinlets; head not prominent before the eyes, vertex transverse; clypeus convex, without

lateral ridges; tegmina gradually slightly amplified towards the apex, furnished towards the apex with oblong areolas arranged in two series and with many areolas less regularly arranged on disk, ulnar and radial veins forked somewhat before the middle of the corium; anterior tibiæ hardly longer than the femora and trochanters, posterior tibiæ bispinose." (*Stål.*)

1983. **Pucina pellucida**, *Guér.* (Cixius) *Voy. 'Coquille,' Zool.* ii, p. 189 (1830); *id. Icon. Règn. Anim., Ins.* p. 358, t. lviii, f. 4 (1843); *Spin.* (Ricania) *Ann. Soc. Ent. Fr.* 1839, p. 401; *Stål* (Pucina), *Berl. ent. Zeitschr.* x, p. 393 (1866); *Atkins. J. A. S. Beng.* lv, p. 63 (1886); *Melich. Ann. Hofmus. Wien,* xiii, p. 329, t. xiv, f. 15, *a, b* (1898).

"Head yellowish with three ridges; face three times longer than broad, strongly margined and with a median ridge; vertex

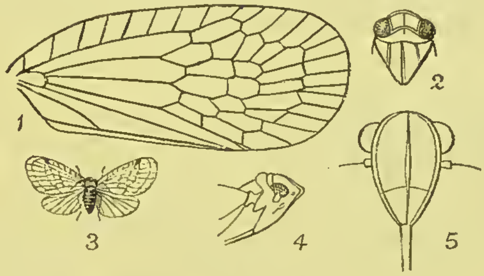

Fig. 202.—*Pucina pellucida.*

broader than long, disk flat and horizontal, margins elevated, fine, anterior margin obtusely angular, its tip extended a little beyond the eyes, posterior margin angularly emarginate; thorax varied with green and brown, also the abdomen, which is shorter than broad; tegmina and wings transparent, veins brown, with a brown triangular dot on the anterior margin of each tegmen and near its apex, radial vein weakly arcuate, subradial straight, rejoining the radial towards the second third on the anterior margin, the intermediate space with eight transverse subparallel veins and divided into nine fairly large cellules, of which the seven intermediate are as broad as long, the two extreme longer than broad, the adjoining space between the radial and cubital veins divided into two large, narrow, elongate cellules by a complete transverse vein; legs yellowish, tarsi brown, posterior tibiæ with two lateral spines."

Length 6; exp. tegm. 16 millim.

Hab. Bengal (*fide Guér.*).—Java (*fide Guér.*). Australia (*fide Melichar*).

I have not seen this species, and have reproduced the figs. 1 and 2 from Melichar; 3, 4, and 5 from Guérin.

Genus GÆTULIA.

Gætulia, *Stål, Stett. ent. Zeit.* 1864, p. 54; *Melich. Ann. Hofmus. Wien*, xiii, p. 327 (1898).

Type, *G. plenipennis*, Walk., from Central America.

Distribution. Neotropical and Oriental Regions.

Head (including eyes) considerably narrower than pronotum, a little prominent before eyes, base of vertex profoundly sinuate; face much longer than broad; clypeus medially and laterally finely carinate (Stål, however, states that the lateral margins are not carinate); pronotum short, strongly convexly produced between eyes, centrally ridged; mesonotum large, tricarinate, the carinations subparallel; tegmina moderately ampliated, two longitudinal veins emitted from upper end of basal cell and widely separated, costal membrane with the transverse veins well separated, only a little oblique, three longitudinal cells on basal area, after which the surface is more or less broadly reticulated by numerous transverse veins, which also form a continuous subapical marginal line.

1984. **Gætulia nigrovenosa**, *Melich. Ann. Hofmus. Wien*, xiii, p. 328, t. xiii, f. 18 (1898).

Body and legs ochraceous; face with two sublateral longitudinal black lines (sometimes, as in the specimen here figured, entirely absent); a small anterior lateral black spot on each side of mesosternum; vertex of head with two central piceous lines (in some specimens obsolete); pronotum and mesonotum palely testaceous,

Fig. 203.—*Gætulia nigrovenosa.*

the first with the margins and a central carinate fascia pale ochraceous, the latter with three longitudinal fasciæ and its lateral margins pale ochraceous, the central fascia more or less margined with piceous; abdomen above with transverse discal and lateral fasciate black spots, the largest of which is discal and subapical; abdomen beneath with transverse piceous fasciæ; tegmina and wings hyaline, the venation fuscous, the first with a subtriangular

costal fuscous spot near apical area and a small fuscous spot (sometimes absent) above middle of apical margin.

Length excl. tegm. 5½; exp. tegm. 16 millim.

Hab. Assam; Margherita (*Doherty*). Darjiling (*fide Melichar*). Tenasserim; Myitta (*Doherty*).

1985. Genus? **prominens**, *Walk.* (Ricania) *Ins. Saund., Hom.* p. 48 (1858); *Atkins. J. A. S. Beng.* lv, p. 57 (1886); *Melich.* (gen.?) *Ann. Hofmus. Wien,* xiii, p. 341 (1898).

"Dull testaceous; head forming on each side a large vertical compartment, in which the eye and the antennæ are seated; vertex transverse, very short, mostly covered by the pronotum; face with transverse blackish marks, very much longer than broad, with elevated borders and with three slight keels, the middle one shortened, the pair converging towards the face (clypeus?), where they are connected; face (clypeus?) lanceolate, keeled; pronotum very convex along the fore border, with two slight keels; mesonotum with a brown interlined disk and with two blackish dots on each side; metanotum and abdomen dark brown, the latter with a pale testaceous stripe on each side; legs testaceous; femora slightly streaked with black; wings greyish-vitreous, exterior and interior borders brown, veins black; tegmina with brown marks along the costa and with a few brown marks elsewhere, and with an irregular whitish subapical band; stigma whitish, veinlets regular along the costa and along the exterior border, where they are mostly forked; discal veins and veinlets irregular, the latter numerous; wings with very few veinlets." (*Walker.*)

"Length, body 4; wings 12 lines."

Hab. Sylhet (*fide Walker*).

I have been unable as yet to find this species in the National Collection. Its long face clearly locates it in some genus belonging to the *Nogodiniaria*, but the "two keels" to the pronotum is a disturbing factor.

Genus **LASONIA**.

Lasonia, *Melich. Hom. Faun. Ceylon,* p. 87 (1903).

Type, *L. kirkaldyi*, Melich.

Distribution. Ceylon.

"Head with eyes as broad as pronotum; vertex not extending beyond eyes, broader than long, roundly curved in front, its margins ridged; face longer than broad, slightly curved downward, rounded on sides and ridged to clypeus, on upper margin straight, medially ridged; clypeus somewhat long, triangular, arched, not ridged; eyes large, semicircular; ocelli absent; antennæ very short; pronotum as long as vertex, produced in front, somewhat laminate between eyes, posteriorly straight, its disk smooth, indistinctly ridged; mesonotum short, triangular, broader than long, with an oblique curved ridge which does not extend to posterior margin of pronotum; tegmina narrow, four times as long as

broad, rounded off at apices, costal cell from base to middle very narrow, then strongly and gradually expanded, occupying the whole apical extremity and passing over into the sutural cell, costal cell without transverse veins at base, traversed in middle by short transverse veins placed wide apart, and in the broad apical area by thick single transverse veins which are setose, three longitudinal veins emerge from base, the outermost forked near base and forming a long subcostal cell pointed before and behind, second longitudinal vein united by an oblique transverse vein to inner branch of first vein and strongly forked at end, third vein simple and weaker than the other two, all these veins smooth and not setose, in the cells are a few delicate transverse veins, in clavus one forked and numerous transverse veins; wings rather shorter than tegmina, tip of middle longitudinal vein decidedly notched, six simple longitudinal veins connected together by numerous transverse veins; posterior tibiæ with two spines." (*Melichar.*)

I only know this genus by Melichar's description and figure of the typical species. Its describer places it in the *Ricaniinæ*, which, judging from the short mesonotum and the narrow tegmina, seems an uncongenial position. I therefore enumerate it at the end of the subfamily, but have refrained from placing it in my synopsis of genera.

1986. **Lasonia kirkaldyi,** *Melich. Hom. Faun. Ceylon*, p. 88, t. ii, f. 9, *a* (1903).

"Brown, spotted with black, a large, smooth, circular, black hump on the face below margin, this protuberance has a circular ridge which joins the front marginal ridge, on both sides a black longitudinal spot, from the lower margin of the circle a central ridge commences and reaches base of clypeus; eyes brown; antennæ yellowish-brown; vertex slightly keeled and spotted with black as well as pronotum and mesonotum; tegmina hyaline, veins brown, irregular small and large brown spots in cells which rest on veins and leave the middle of the cells free, in middle cell are two transverse spots on the upper and lower transverse veins, at apical area a brown spot, apical margin with small curved transverse veins; wings hyaline, vitreous, with black veins; abdomen brown, posterior margins of dorsal segments black; legs yellowish-brown, femora longitudinally striped with brown, apices of spines to posterior tibiæ black." (*Melichar.*)

Fig. 204.—*Lasonia kirkaldyi.*

"Length, ♀, 12; exp. tegm. 22 millim."

Hab. Ceylon (*fide Melichar*).

I have not seen this species.

Subfamily XI. FLATINÆ.

Flatida, *Stål, Hem. Afr.* iv, pp. 131 & 235 (1866).
Flatina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 771; *Atkins. J. A. S. Beng.* lv, p. 63 (1886).
Flatidæ, *Melich. Ann. Hofmus. Wien,* xvi, p. 179 (1901).

"Clavus granulate, its apex sometimes subacute and closed, sometimes very obtuse and broadly open, with two veins separated throughout the entire length, or united in one near apex; costa dilated, costal membrane transversely veined; claval suture distinct; anal area of wings not reticulated; posterior tibiæ without a mobile spur." (*Stål.*)

The granulated clavus is an unfailing structural test as to the position of the beautiful insects which find a place in this subfamily. Dr. Melichar has recently (*supra*) written a monograph on the *Flatinæ*, and though Homopterists must be grateful to him for the referential character of his work, he has unfortunately surcharged his pages with an incorrect synonymy, which greatly detracts from their permanent value.

In enumerating and describing the not inconsiderable number of genera found in British India I have found certain characters which can be used in divisional separation, and though no morphological value can be, or is, claimed for them, it is thought they will enable those into whose hands this book may fall, especially residents in British India, to more readily understand the generic classification.

Division *PHROMNIARIA*.

In this division the tegmina have their apical margins (including the apical and posterior angles) more or less convexly rounded, and are as broad or a little broader than the wings.

Synopsis of Genera.

A. Tegmina with the costal membrane broader than the radial area.
  a. Tegmina flat, nearly twice as long as broad . PHROMNIA, p. 398.
  b. Tegmina convex, only about one-third longer than broad, obliquely deflected before clavus .... ANGGIRA, p. 403.
B. Tegmina with the costal membrane narrower than the radial area.
  a. Vertex of head as wide at base as at apex; clypeus not transversely carinate .... DANAVARA, p. 404.
  b. Vertex of head broader at apex than at base; clypeus transversely carinate on basal area . CHATURBUJA, p. 405.

Genus PHROMNIA.

Phromnia, *Stål, Rio Jan. Hem.* ii, p. 68 (1858); *id. Hem. Afr.* iv, pp. 235 & 239 (1866); *Atkins. J. A. S. Beng.* lv, p. 64 (1866).
Flata (part.), *Amy. & Serv. Hém.* p. 521 (1843); *Melich.* (part.) *Ann. Hofmus. Wien*, xvii, p. 203 (1902).

Type, *P. limbata*, Fabr., an Ethiopian species.
Distribution. Ethiopian, Oriental, and Malayan Regions.

Body compressed; head (including eyes) very much narrower than the pronotum; vertex oblong, its lateral margins strongly ridged, its anterior margin concavely sinuate, considerably extending beyond the eyes; face with two longitudinal ridges; clypeus long; antennæ elongate, rounded, second joint much longer than first; pronotum obliquely transverse, narrow, anteriorly produced to between eyes, tricarinate, the area of the carinations a little raised and shield-like; mesonotum convex, obscurely tricarinate; posterior tibiæ generally bispinose; tegmina ample, longer by half than broad, as broad as wings, apical margin rounded, costal membrane broad with closely arranged transverse veins, four longitudinal veins from base, the second very strongly bifurcate from near middle, beyond their apices, which extend to a little before middle of tegmen, the venation is densely longitudinal, with a distinct line formed by transverse veins before apical margin, some transverse veins on disk, and transverse veins on basal area excluding central disk; wings with oblique longitudinal veins on apical costal area, some of the longitudinal veins bifurcate near apical margin.

1987. **Phromnia marginella**, *Oliv.* (Fulgora) *Enc. Méth.* vi, p. 575 (1791); *Stål* (Phromnia), *Öfv. Vet.-Ak. Förh.* 1862, p. 490; *Atkins. J. A. S. Beng.* lv, p. 65 (1886); *Cotes, Ind. Mus. Notes*, ii, p. 95, t. xvi, f. 2 (1891); *Melich.* (Flata) *Ann. Hofmus. Wien*, xvi, p. 205 (1901).
Flata limbata, *Hutton, J. A. S. Beng.* xii, p. 898 (1843).

Body and legs brownish-ochraceous, in fresh specimens much

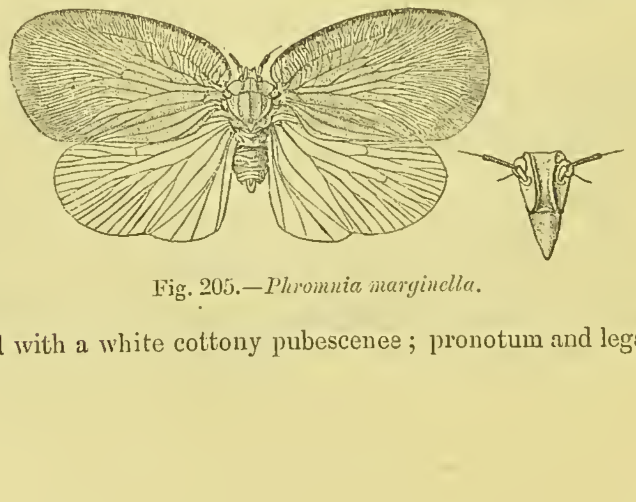

Fig. 205.—*Phromnia marginella.*

clothed with a white cottony pubescence; pronotum and legs more

or less tinted with pale green; apices of the tibiæ and tarsi black; apex of first and whole of second joint of the antennæ black; tegmina pale greenish, the venation more olivaceous-green, and the costal margin sanguineous, on the under surface they are considerably cretaceously tomentose; wings exceedingly pale bluish-green; the face is strongly bicarinate; the central carination to pronotum bifurcating before anterior margin.

Var. Tegmina pale tawny-yellow, the costal margin dark tawny-brown.

Length excl. tegm. 12 to 14; exp. tegm. 48 to 50 millim.

Hab. Assam; Noa Dehing Valley (*Chennell*). Sikhim (*Ind. Mus.*). Darjiling (*fide Melichar*). Ceylon; Kandy (*Green*). Tenasserim; Mergui (*Coll. Dist.*).

I have received both the typical and varietal form from Ceylon. According to Capt. Hutton (*supra*), from observations on the insect made at Mussooree, the white sugary secretion which it produces is only obtainable throughout the dry weather from January to June, as it is washed away by the first heavy rain that falls upon it. The eggs hatch in December, and the larvæ cluster like sheep upon the food-plant. They feed by sucking the juices of the leaves, and moult several times, gradually increasing in size until the setting-in of the rainy season in June, when winged imagos begin to emerge. Mr. R. H. E. Thompson noticed that in Garhwal the natives eat the sugary secretion and call the insects *Dharberi*, *i. e.* "sheep," on account of their habit of clustering together and jumping away when disturbed. Mr. W. P. Thomas ascertained that the Koorkoos and other tribes in the Narsingpur district of the Central Provinces know the insect, but make no use of the sugary secretion, which they say has a narcotic effect when eaten. In this district the insects were found on the green succulent coppice-shoots of *Elæodendron roxburghii.*

1988. **Phromnia tricolor**, *White* (Pœciloptera, Flatida), *A. M. N. H.* xviii, p. 26 (1846); *Stål* (Phromnia), *Öfv. Vet.-Ak. Förh.* 1862, p. 490; *Atkins. J. A. S. Beng.* lv, p. 65 (1886); *Melich.* (Flata) *Ann. Hofmus. Wien*, xvi, p. 208 (1901).

Body ochraceous, abdomen strongly cretaceously tomentose; legs greenish, the tibiæ darker; head with the lateral ridged margins greenish; pronotum and mesonotum very finely sprinkled with black; tegmina pale greenish, more or less cretaceously and tomentosely finely maculate, the costal and claval areas palely sanguineous and also cretaceously maculate; the under surface of the tegmina is more cretaceously tomentose than above; wings pale lacteous much suffused with cretaceous; general structural characters as in *P. marginella.*

In some specimens the ground-colour of the tegmina is reddish-ochraceous with nearly the whole basal area sanguineous, in other

examples the ground-colour is olivaceous-green with only the costal area sanguineous; rubbed or faded specimens do not exhibit the cretaceous maculation.

Length excl. tegm. 13 to 15; exp. tegm. 51 to 60 millim.

Hab. Assam; Khási Hills (*Chennell*). Nága Hills (*Ind. Mus.*). Sylhet. Burma; Bhamo (*fide Melichar*).—Siam.

1989. **Phromnia rubicunda**, *Dist. A. M. N. H.* (5) xi, p. 171 (1883); *Atkins. J. S. Beng.* lv, p. 65 (1886); *Waterh. Aid Ident. Ins.* ii, t. clii, f. 1 (1882–90).
Flata floccosa, *Melich.* (part.) *Ann. Hofmus. Wien,* xvi, p. 208 (1901).

Body and legs tawny-ochraceous; disk of mesonotum shining ochraceous; antennæ black; anterior and intermediate tibiæ and tarsi black; tegmina dull dark testaceous-red becoming somewhat paler towards apex, irregularly spotted with cretaceous-white, more particularly so on basal and less on apical areas; wings white, cretaceously tomentose.

Length excl. tegm. 13; exp. tegm. 62 millim.

Hab. Mergui (*Anderson, Coll. Dist.*).

Apart from the peculiar coloration of this species, it may be distinguished by the long and apically convex tegmina, which are obliquely rounded at both apex and posterior margin. Dr. Melichar includes *rubicunda* as a synonym of *P. floccosa*, Guér.; had he consulted the figure, to which he does not refer, such a misunderstanding would have been impossible.

1990. **Phromnia flaccida**, *Walk.* (Flata) *Ins. Saund., Hom.* p. 50 (1858).
Phromnia hamifera, *Walk. J. Linn. Soc., Zool.* x, p. 181 (1869); *Melich.* (Flata) *Ann. Hofmus. Wien,* 1901, p. 211.
Flata floccosa, *Melich.* (part.) *Ann. Hofmus. Wien,* xvi, p. 208 (1901).

Body and legs tawny-yellow; antennæ with the second joint, sometimes both joints, black; anterior and intermediate tibiæ and tarsi black; tegmina tawny-yellow, very pale tawny-brown, or pale greyish-brown, with two discal oblique fasciæ commencing near middle and united a little before apex and a subbasal fasciate transverse spot above clavus (sometimes absent) darker and more brownish, in some (probably fresh) specimens the upper surface of the tegmina is much cretaceously tomentose; the anterior and intermediate tibiæ vary in being wholly black, or black with their bases tawny-brown.

Length excl. tegm. 13 to 16; exp. tegm. 44 to 60 millim.

Hab. "Ostindien" (*fide Melichar*).—Java, Borneo, Sumatra.

Dr. Melichar has treated this species as a synonym of *P. floccosa*, Guér.; it, however, does not differ from *P. hamifera*, Walk., which he enumerates as a distinct species.

1991. **Phromnia montivaga**, *Dist. Tr. E. S.* 1892, p. 284, t. xiii, f. 5.
Flata floccosa, *Melich.* (*nec Guér.*) *Ann. Hofmus. Wien*, xvi, p. 208, t. i, f. 9 (1901), excl. syn.

Head and thorax above reddish; abdomen and legs pale ochraceous; eyes, antennæ, anterior and intermediate tibiæ and tarsi, and the posterior tarsi black; tegmina ochraceous, reddish-ochraceous on disk of basal half and clavus, the costal area and the apical half thickly powdered with greyish tomentum, the basal disk very sparingly so, the apical margin and a double curved discal fascia on outer half very pale fuscous and very indistinctly seen through the tomentose covering, a black central spot near base; wings greyish-white.

Length excl. tegm. 13; exp. tegm. 50 millim.

Hab. "Ostindien" (*Melichar*).—Borneo; Kina Balu Mt.

I include this species in the fauna of British India on the authority of Dr. Melichar, who has figured it as *P. floccosa*, Guér.

1992. **Phromnia viridula**, *Atkins.* (Cerynia) *J. A. S. Beng.* lvii, p. 340 (1888); *Melich.* (Flata) *Ann. Hofmus. Wien*, xvi, p. 212 (1901).

Body and legs greenish-ochraceous, abdomen thickly cretaceously tomentose; legs with the anterior and intermediate tarsi piceous; tegmina virescent, a little ochraceous at base, two black linear spots with bluish-grey margins on disk, the first near middle of

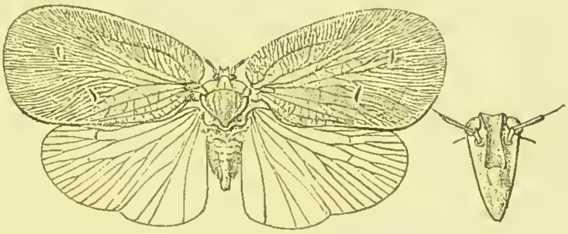

Fig. 206.—*Phromnia viridula.*

posterior area, the other nearer apex, apical margin continued to near middle of posterior margin very narrowly black; wings cretaceous-white; antennæ with the second joint black, its base greenish-ochraceous.

Var. Tegmina very pale ochraceous with a slight virescent tint; the two black discal spots very small, the uppermost minute and without pale margins; the narrow dark marginal edge to the tegmina brownish, not black; wings lacteous, not cretaceously tomentose.

Length excl. tegm. 11 to 12; exp. tegm. 45 to 50 millim.

Hab. Sikhim (*fide Melichar*). Bombay; Poona (*Atkinson*). Trivandrum (*Coll. Dist.*).

1993. **Phromnia inornata,** *Walk.* (Flata) *List Hom.* ii, p. 438 (1851); *Stål* (Phromnia), *Öfv. Vet.-Ak. Förh.* 1872, p. 490; *Atkins. J. A. S. Beng.* lv, p. 66 (1886); *Melich.* (Flata) *Ann. Hofmus. Wien,* xvi, p. 213 (1901).

Body and legs pale ochraceous; antennæ with the basal joint ochraceous, second joint black with its base ochraceous, or in some specimens with the whole of the second joint and the apex of the first joint black; anterior and intermediate legs with the apices of the tibiæ more or less piceous or black, and their tarsi of the same colour; tegmina uniformly pale ochraceous; wings milky-white; pronotum with the central carination continuous, not bifurcating before anterior margin, which is centrally sinuate, the lateral discal carinations oblique, the anterior angles rounded.

Length excl. tegm. 12; exp. tegm. 42 to 45 millim.

Hab. Assam; Margherita (*Doherty*). Darjiling (*Coll. Dist.*). Burma; Momeit (*Doherty*). Tenasserim (*Brit. Mus.*).

1994. **Phromnia deltotensis,** *Kirby, J. Linn. Soc., Zool.* xxiv, p. 155 (1891); *Melich.* (Flata) *Ann. Hofmus. Wien,* xvi, p. 214 (1901).
Phromnia marginella, *Kirk.* (part.) *J. Bomb. Nat. Hist. Soc.* xiv, p. 53 (1902).

In colour and general appearance indistinguishable from the preceding species, *P. inornata*, and only, as far as I can discern, differing from that species by the ridges of the pronotum, which in *P. deltotensis* have the two lateral discal carinations not oblique but straight and concavely sinuate near middle, and by the anterior margin of the pronotum being scarcely sinuate.

Length excl. tegm. 12; exp. tegm. 45 millim.

Hab. Ceylon; Deltota, Kandy (*Green*).

This species seems to be quite confined to Ceylon and is very liable to be overlooked and placed under *P. inornata*.

1995. **Phromnia intacta,** *Walk.* (Flata) *List Hom.* ii, p. 435 (1851); *Stål* (Phromnia), *Öfv. Vet.-Ak. Förh.* 1862, p. 490; *Atkins. J. A. S. Beng.* lv, p. 66 (1886); *Melich.* (Flata) *Ann. Hofmus. Wien,* xvi, p. 213 (1901).

"Body pale stramineous; antennæ long, stramineous, third joint black, much longer than the second; pronotum almost truncate-conical on the disk, somewhat impressed in front, tricarinate, ridges produced through the mesonotum; abdomen obconical, not longer than the pronotum; legs tawny, anterior tarsi and tips of the anterior tibiæ and of the posterior tarsi black; tegmina dingy white, veins white; wings milky-white." (*Walker.*) Pronotum with the central carination distinctly bifurcate near anterior margin, which is depressed, the lateral discal carinations very slightly oblique.

Length excl. tegm. 12; exp. tegm. 47 millim.

Hab. Sylhet (*Brit. Mus.*).—North Borneo (*Coll. Dist.*).

The last three species are so closely allied that the following synopsis may be useful:—

A. Anterior margin of pronotum strongly centrally sinuate.
  a. Central carination to pronotum percurrent, not anteriorly bifurcate.............................. *inornata.*
  b. Central carination to pronotum bifurcating a little before its apex.............................. *intacta.*
B. Anterior margin of pronotum not distinctly sinuate.... *deltotensis.*

Genus **ANGGIRA**, nov.

Type, *A. typica*, Dist.

Distribution. British India.

Head (including eyes) much narrower than pronotum, the vertex obliquely anteriorly widened, its lateral margins laminately raised, and with a distinct central carination; face longer than broad, the lateral margins laminately ridged and distinctly strongly sinuate before apex; clypeus long; posterior tibiæ obscurely spinose; pronotum with its anterior margin truncate and extended between eyes and with a distinct central carination; mesonotum large, moderately convex, tricarinate; tegmina short, ampliate, apical margin rounded, costal membrane broader than radial area, coarsely transversely veined, reticulate near base, radial area with more or less reticulate transverse veins and remaining area of tegmen also transversely reticulate, the longitudinal veins prominent; the tegmina are also distinctly convex and sensibly depressed beneath the lower longitudinal vein; wings a litte narrower than tegmina, anal area with a few obsolete transverse veins, the two lowermost distinct.

This genus has a strong superficial resemblance to *Danavara*, from which it may be separated by the relative widths of the costal membrane and radial area and the different structure of the face.

1996. **Anggira typica**, sp. n.

Head (including face) and pronotum dull green; mesonotum, abdomen above, body beneath, and legs ochraceous, tarsi more or

Fig. 207.—*Anggira typica.*

less piceous; tegmina pale olivaceous-green, the costal margin pale brownish-ochraceous, the apical margin narrowly darker olivaceous;

wings creamy-white with the venation virescent; pronotum with a globose elevation a little before each lateral area; mesonotum with the lateral carinations more pronounced than the central one; abdomen robust; tegmina strongly arched at base; lateral margins of pronotum angularly truncate.

Length excl. tegm. 10; exp. tegm. 30 millim.

Hab. S. India; Trivandrum (*Coll. Dist.*).

Genus **DANAVARA**, nov.

Type, *D. tennentina*, Walk.

Distribution. Oriental Region.

Head (including eyes) narrower than pronotum; vertex broader than long, almost situate in front of eyes, its lateral margins laminately upwardly ridged; face moderately broad, its lateral margins laminately ridged, obsoletely medially carinate; clypeus somewhat long, more distinctly medially carinate than face; posterior tibiæ with two spines near apex; pronotum longer than vertex, tricarinate, the carinate area raised and continued to between eyes; mesonotum moderately large, convex, and obscurely tricarinate; tegmina short, broad, about as broad or a little broader than wings, apical margin (including apex) rounded, costal membrane narrower than radial area, with transverse veins, many of which are furcate, a little narrowed medially, radial area with oblique somewhat widely separated transverse veins with some faint connecting veinlets, the radial vein very robust and prominent, beneath which the tegmen is somewhat densely longitudinally furcately veined, behind clavus thickly and moderately convexly produced; wings about as broad or very little narrower than tegmina, a few transverse veins near upper apical area, and most of the longitudinal veins becoming outwardly furcate.

1997. **Danavara tennentina,** *Walk.* (Pœciloptera) *List Hom. Suppl.* p. 11 (1858); *Kirby* (Scarpanta), *J. Linn. Soc., Zool.* xxiv, p. 153 (1891); *Melich.* (part.) *Ann. Hofmus. Wien*, xvi, p. 241, t. ii, f. 5 (1901); *id. Hom. Faun. Ceylon*, p. 89 (1903).

Elidiptera emersoniana, *Tennent, Nat. Hist. Ceylon*, p. 433, fig. (1861).

Pronotum, mesonotum, and legs virescent; head and body beneath ochraceous or greenish-ochraceous; mesonotum with a central dark line, the margins and two discal longitudinal fasciæ ochraceous; margins of metanotum cretaceously pubescent; tegmina pale green, in some places cretaceously tomentose, the venation, especially the prominent radial vein, paler in hue; two obscure transverse oblique irregular cretaceously tomentose fasciæ beyond middle, the innermost medially enclosing a brown spot, a small piceous discal spot beneath radial area, and a brown spot on

apical margin a little above posterior angle; wings cretaceously white.

Length excl. tegm. 7; exp. tegm. 30 millim.

Hab. Ceylon.

Fig. 208.—*Danavara tennentina.*

I only know this species by the unique type in the British Museum, which was collected by Sir Emerson Tennent. Mr. Green, in his many collections, has not sent me a specimen.

1998. **Danavara latipennis,** *Kirby* (Scarpanta), *J. Linn. Soc., Zool.* xxiv, p. 153, t. vi, f. 9 (1891).

Scarpantia tennentina, *Kirk.* (part.) *Entomologist,* 1900, p. 295; *Melich.* (part.) *Ann. Hofmus. Wien,* xvi, p. 241 (1901).

Body and legs pale ochraceous, unicolorous; tegmina saffron-yellow, with a minute brown spot on radial vein near base, three elongate purplish-brown linear spots in longitudinal series commencing beyond middle of disk and terminating on apical margin, and a few minute speckles of the same colour on basal area beneath radial vein; wings pale cretaceous-white.

Length excl. tegm. $6\frac{1}{2}$; exp. tegm. 29 millim.

Hab. Ceylon; Kandy (*Green*).

Kirkaldy and Melichar (*supra*) have strangely included this species as a synonym of *D. tennentina,* Walk., with which it has little in common. Apart from its altogether different coloration, the radial vein is much less thickened and pronounced than in Walker's species, the tegmina not evenly rounded on apical portion of costal margin, but there more or less angularly sinuate, the oblique veins in radial area very much less connected, &c.

Genus **CHATURBUJA**, nov.

Type, *C. comma,* Walk.

Distribution. Oriental (according to my present knowledge).

Head (including eyes) much narrower than pronotum; vertex broader than long, obliquely widened anteriorly, its lateral margins strongly ridged, almost situate in front of eyes; face broad, its

lateral margins strongly ridged, and subobsoletely medially carinate; clypeus long, obsoletely medially carinate, distinctly finely obliquely carinate on each side of anterior disk; posterior tibiæ very obsoletely spined; pronotum continued to between eyes, where it is convex and slightly centrally sinuate, central carination obsolete; mesonotum large, convex, obsoletely tricarinate; tegmina broad, apically rounded, including both apical and posterior angles, costal membrane narrower than radial area, transversely veined, many of the veins furcate; radial area with oblique veins reticulately connected, longitudinal veins beyond basal area more or less obscurely transversely reticulate, the transverse veins forming two ill-defined transverse lines on apical area; clavus above claval vein transversely veined, beneath the vein thickly granulate; wings about as broad as tegmina, with transverse and transversely-oblique veins in anal area.

To be distinguished from *Flatosoma*, Melich. (type *P. signoreti*, Melich.), by the different shape of the face, venation of wings, &c.

1999. **Chaturbuja comma**, *Walk.* (Pœciloptera) *List Hom.* ii, p. 447 (1851); *Stål* (Scarpanta), *Öfv. Vet.-Ak. Förh.* 1862, p. 490; *Atkins. J. A. S. Beng.* lv, p. 67 (1886).

Body and legs pale ochraceous; apices of tibiæ and tarsi more or less piceous; tegmina saffron-yellow, with two short transverse

Fig. 209.—*Chaturbuja comma.*

piceous lines, the first above clavus, the second and longer on disk beyond middle, sometimes a cluster of minute piceous speckles above the lowermost linear spot, but these are inconstant, and in the type specimen are found on one tegmen and not on the other; wings cretaceous-white.

Length excl. tegm. 10; exp. tegm. 44 millim.

Hab. Sylhet (*Stainforth, Brit. Mus.*).

Melichar (Ann. Hofmus. Wien, xvi, p. 245, t. vii, f. 14, 1901) describes and figures a species in his genus *Flatosoma* as *F. comma*, Walk., which is not that species and is probably not congeneric with it. The British Museum possesses an undescribed species from Borneo which exactly agrees with Melichar's figure.

Genus LECHÆA.

Lechæa, *Stål, Hem. Afr.* iv, p. 236 (1866); *id. Berl. ent. Zeitschr.* p. 393 (1866); *Atkins. J. A. S. Beng.* lv, p. 66 (1886); *Melich. Ann. Hofmus. Wien*, xvi. p. 232 (1901).

Type, *L. dentifrons*, Guér.

Distribution. Oriental and Malayan Regions.

"Tegmina furnished towards the apex with one or two rows of transverse veinlets or with veinlets irregularly scattered throughout, and with very many or several longitudinal veins forked at the apex, the longitudinal veins at the apex rarely simple, if so the tegmina furnished with a single row of veinlets near the apex; body cylindrical or compressed; tegmina strongly decumbent; face (seen from the sides) and genæ produced in the middle; tegmina very ample, gradually somewhat amplified towards the apex, near which it is furnished with a regular arched row of transverse veinlets which begins behind the apex of the clavus; costal area transversely veined, some of the veins anastomosed." (*Stål.*)

I only know this genus from its description, and have therefore been unable to place it in the generic synopsis. It seems to belong to the division *Phromniaria.*

2000. **Lechæa dentifrons,** *Guér.* (Pœciloptera) *Icon. Règn. Anim.* p. 360 (1843); *Stål* (Lechæa), *Berl. ent. Zeitschr.* x, p. 393 (1866); *Melich. Ann. Hofmus. Wien,* xvi, p. 233, t. iii, f. 2, *a, b, c* (1901).

"Body dull yellow with an orange spot on each edge of the mesonotum; face produced and enlarged towards middle, the edges strongly carinate, reflexed near the vertex, with the most produced portion furnished with two tubercles which (seen from above) form, with the angles produced by the carinations, four well-developed teeth; antennæ inserted beneath the eyes, the second joint protruding a little beyond the lateral carination; tegmina slender, yellow, rounded, a little more darkly coloured near base; wings white; legs concolorous with the body, the anterior and intermediate femora and the tarsi black." (*Guérin.*)

Length, body, 15; exp. tegm. 51 millim.

Hab. Malabar (*fide Guérin*).—Borneo.

I have not seen this species.

Division *CERYNIARIA.*

The *Ceryniaria* agree with the *Phromniaria* in having the tegmina with their apical margins (including the apical and posterior angles) more or less convexly rounded, but differ in their being more elongate and narrower than the wings.

In the four genera here enumerated, the costal membrane of the tegmina is broader than the radial area.

Synopsis of Genera.

A. Face longer, sometimes considerably longer, than broad.
  a. Clypeus with two longitudinal ridges on basal area........................ CERYNIA, p. 408.
  b. Clypeus without two longitudinal ridges on basal area.
    a'. Costal membrane slightly broader than radial area, the latter with a few transverse veins .... COPSYRNA, p. 409.
    b'. Costal membrane much broader than radial area, the latter with many transverse veins .... HANSENIA, p. 411.
B. Face about, or almost, as broad as long .. BYTHOPSYRNA, p. 412.

Genus CERYNIA.

Cerynia, *Stål, Rio Jan. Hem.* ii, p. 68 (1862); *id. Hem. Afr.* iv, p. 235 (1866); *Atkins. J. A. S. Beng.* lv, p. 64 (1886); *Melich. Ann. Hofmus. Wien*, xvi, p. 218 (1901).

Type, *C. albata*, Stål, from Malacca and adjoining Malayan islands.

Distribution. Oriental and Malayan Regions.

Head (including eyes) narrower than pronotum; vertex elongate with the lateral margins laminately elevated, transversely ridged at base, moderately produced in front of eyes; antennæ with the first and second joints subequal in length, the latter a little apically thickened; face convex at base, the lateral margins laminately elevated; clypeus long, with two curved longitudinal ridges on basal area; pronotum tricarinate, the carinate area forming a raised plate which is continued convexly between the basal margins of the eyes; mesonotum convex, tricarinate; tibiæ strongly sulcate, posterior tibiæ long, curved, unarmed, tegmina moderately ampliate, only slightly longer and a little narrower than wings, their apices rounded, costal membrane broad, narrower at base, and somewhat thickly transversely veined, longitudinal veins emitted from end of basal cell, waved and furcate, apical area crossed by two lines formed of transverse veins apparently dividing two series of numerous narrow longitudinal cells, clavus finely granulate, claval vein almost reaching apex; wings broader and a little shorter than tegmina.

2001. **Cerynia maria**, *White* (Pœciloptera), *A. M. N. H.* xviii, p. 25, t. i, f. 3 (1846); *Dist. J. A. S. Beng.* xlviii, p. 38 (1879); *id. A. M. N. H.* (5) xi, p. 172 (1883); *Atkins. J. A. S. Beng.* lv, p. 64 (1886); *Melich. Ann. Hofmus. Wien*, xvi, p. 220, t. xi, f. 13 (1901).
Var. *a*. Flata completa, *Walk. List Hom.* ii, p. 436 (1851).
Var. *b*. Flata tenella, *Walk. t. c.* p. 437; *Stål* (Cerynia), *Öfv. Vet.-Ak. Förh.* 1862, p. 490.

Var. *c.* Cerynia rosea, *Atkins. J. A. S. Beng.* lv, p. 64 (1886).
Var. *d.* lutescens, *Melich. Ann. Hofmus. Wien,* xvi, p. 220 (1901).

Body and legs very pale ochraceous, the anterior and intermediate tibiæ and tarsi more or less black; antennæ more or less speckled with black; pronotum a little paler with a very slight bluish tint; tegmina very pale bluish-grey and more or less

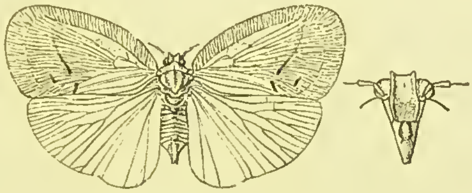

Fig. 210.—*Cerynia maria.*

greyishly tomentose, with a small ochraceous spot near base and three short black lines on posterior apical area, the lower one at right angles to the two uppermost; wings a little paler than tegmina and more transparent.

Var. *completa*, Walk. Tegmina with a somewhat large sanguineous spot near base, the black lines more pronounced, longer, the uppermost nearly crossing disk.

Var. *tenella*, Walk. Tegmina with a somewhat large sanguineous or luteous spot near base, but the black lines less pronounced than in the var. *completa.*

Var. *rosea*, Atkins. Tegmina with a roseate tint; sanguineous spot and black lines as in var. *completa.*

Length excl. tegm. 7 to 10; exp. tegm. 30 to 36 millim.

Hab. Sylhet. Sikhim. Assam; Margherita (*Doherty*). Darjiling and Trivandrum (*Coll. Dist.*). Burma; Karen Hills (*Doherty*). Mergui. Tenasserim; Myitta (*Doherty*).—West China (*Pratt*). Sumatra (*fide Melichar*).

Genus **COPSYRNA.**

Copsyrna, *Stål, Rio Jan. Hem.* ii, p. 69 (1862); *id. Hem. Afr.* iv, p. 237 (1866); *Atkins. J. A. S. Beng.* lv, p. 81 (1896); *Melich. Ann. Hofmus. Wien,* xvi, p. 223 (1901).
Paramelicharia, *Kirk. Entomologist,* 1903, p. 78.

Type, *C. maculata*, Guér.*

Distribution. Oriental and Malayan Regions.

Head (including eyes) narrower than the promotum, vertex with the lateral margins laminately elevated; face very slightly

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* Mr. Kirkaldy proposes the new name *Paramelicharia*, type *maculata*, Guér., because previously, as type for *Copsyrna*, "I had fixed it as *tineoides*, Oliv." As Stål, however, had named the type for his own genus, Melichar seems to have followed the only course open to him in adopting it, as I also necessarily do.

ampliated posteriorly, the lateral margins strongly ridged; clypeus long with two faint oblique longitudinal carinations at basal area; antennæ with the second joint short; posterior tibiæ very finely spined; pronotum longer than vertex, anteriorly subconically produced between the eyes, posterior margin moderately concave; mesonotum large, somewhat raised, the disk flattened and defined by the lateral carinations, central carination to both pronotum and mesonotum obsolete; tegmina elongate, considerably narrower than the wings, apical margin (including apical and posterior angles) rounded, costal membrane very slightly broader than radial area, transversely veined, a few transverse veins in radial area, longitudinal veins strongly furcate and on apical area numerous, a subapical transverse line formed by transverse veins defining a close series of marginal longitudinal cellular areas; wings much broader than tegmina, a few transverse veins near apex, many of the longitudinal veins furcate on outer area.

2002. **Copsyrna maculata**, *Guér.* (Pœciloptera) *Voy. Bélang.* p. 470 (1834); *Icon. Règn. Anim., Ins.* t. lviii, f. 7 (1838); *Spin. Ann. Soc. Ent. Fr.* 1839, p. 425; *Stål* (Copsyrna), *Rio Jan. Hem.* ii, p. 69 (1862); *Melich.* (part.) *Ann. Hofmus. Wien*, xvi, p. 224 (1901); *Kirk.* (Paramelicharia) *Entomologist*, 1903, p. 78.

Body and legs ochraceous, more or less cretaceously tomentose; a central spot on vertex continued to a little beyond middle of face, eyes, two spots on pronotum, two long anterior linear spots and four posterior marginal spots to mesontum black; apices of

Fig. 211.—*Copsyrna maculata.*

the tarsi piceous; tegmina creamy-white, extreme base and the radial area suffused with ochraceous; transverse linear spots to costal membrane becoming more attenuated beyond basal area, a few transverse linear spots to radial area, a number of irregularly shaped spots on disk to beyond middle, and three subapical linear transverse fasciæ piceous; wings creamy-white.

Length excl. tegm. 11; exp. tegm. 26 to 36 millim.

Hab. Sylhet (*fide Melichar*).—Malay Peninsula, Java, Borneo, Sumatra.

Genus HANSENIA.

Hansenia, *Kirk. J. Nat. Hist. Soc. Bomb.* xiv, p. 53 (1902); *id. Entomologist*, 1903, p. 79; *Melich. Ann. Hofmus. Wien*, xvi, p. 228 (1901).

Type, *H. glauca*, Kirby.

Distribution. Ceylon.

Head (including eyes) much narrower than pronotum, vertex with the lateral margins laminately elevated; face longer than broad, the margins laminately elevated; pronotum subconically produced anteriorly, but not extending to between eyes, centrally obscurely carinate; mesonotum convex, obscurely carinate; tegmina somewhat short but narrower than the wings, the apical margin rounded, the apex subangulate, costal membrane much broader than radial area, thickly transversely veined, radial area less thickly transversely veined, the whole tegmen from a little beyond base more or less reticulately transversely veined, a subapical transverse line formed by transverse veins extending to apex of clavus and defining a marginal series of numerous longitudinal cellular areas; wings broader than tegmina, an oblique vein near apex of anal area, two transverse veins near apex, and some of the longitudinal veins furcate on outer area.

2003. **Hansenia glauca**, *Kirby* (Pœciloptera) *J. Linn. Soc., Zool.* xxiv, p. 154, t. vi, f. 14 (1891); *Kirk.* (Hansenia) *Entomologist*, 1903, p. 79.

Hansenia pulverulenta, *Melich. Ann. Hofmus. Wien*, xvi, p. 229, t. ii, f. 3 (1901); *Kirk. J. Nat. Hist. Soc. Bomb.* xiv, p. 54 (1902); *Melich. Hom. Faun. Ceylon*, p. 88 (1903).

Hansenia kirbyi, *Melich. Ann. Hofmus. Wien*, xvi, p. 229 (1901).

Head, pronotum, sternum, and legs very dark olivaceous, almost black; head, pronotum, and mesonotum sometimes yellowish, the latter with two large blackish spots; abdomen and under surfaces of posterior tibiæ pale ochraceous, abdomen above with some transverse dark spots; tegmina pale or dark violaceous, the apical marginal area always paler and more prominent when the tegmen is dark violaceous; wings greyish with the venation darker; the body and especially the tegmina are always cretaceously tomentose.

Fig. 212.—*Hansenia glauca.*

Length excl. tegm. 9½ to 10; exp. tegm. 33 to 35 millim.

Hab. Ceylon; Pundaluoya (*Green*).

Some confusion has arisen in the identification of this species. Kirkaldy (*supra*) stated that it was synonymous with the Neotropical species described by Guérin (*Ormenis pulverulenta*). In this error he states (*vide* Entomologist, 1903, p. 79) he was followed

by Melichar, who, however, in another part of his monograph (*tom. cit.* xvii, p. 70) again enumerates it under its proper genus *Ormenis*.

Mr. Green has recorded that it sometimes covers the leaves of certain *Eugenia* trees upon which the larva feeds, and when disturbed flies out in clouds.

Genus **BYTHOPSYRNA**.

Bythopsyrna, *Melich. Ann. Hofmus. Wien*, xvi, p. 224 (1901).
Copsyrna, *Kirk. Entomologist*, 1903, p. 78.

Type, *B. circulata*, Guér.

Distribution. Oriental and Malayan Regions.

Head (including eyes) much narrower than pronotum; vertex broader than long, the lateral margins laminately elevated, transversely ridged near base and a little widened anteriorly; face longer than broad, its lateral margins laminately ridged; pronotum rounded anteriorly, where it is finely centrally sinuate, its posterior margin concave; mesonotum long, tricarinate, the area of the carinations forming a flat process; tegmina somewhat elongate, a little narrower than the wings, the apical margin (including apical and posterior angles) rounded, costal membrane broader than the radial area and closely transversely veined, radial area reticulately veined, longitudinal veins furcate at a short distance from base, on apical area the longitudinal veins are very numerous and in many cases are furcate on the apical margin; wings broader than tegmina.

2004. **Bythopsyrna circulata**, *Guér.* (Pœciloptera) *Icon. Règn. Anim., Ins.* p. 361 (1838); *Melich.* (Bythopsyrna) *Ann. Hofmus. Wien*, xvi, p. 225, t. ii, f. 6 (1901).
Pœciloptera dianthus, *White, A. M. N. H.* xv, p. 36 (1845).

Body and legs ochraceous, a central spot to vertex, which is sometimes continuous, with a central fascia to face, lateral margins

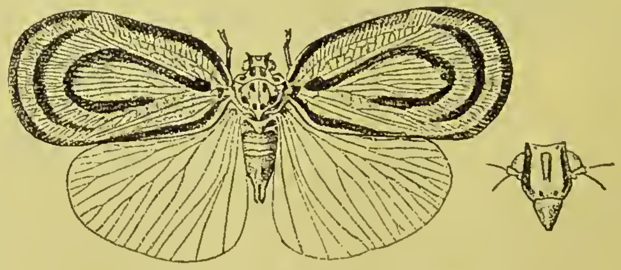

Fig. 213.—*Bythopsyrna circulata.*

to face (sometimes broad, sometimes extremely narrow), eyes, two spots to pronotum, six spots to mesonotum, anterior and intermediate legs, and the tarsi of the posterior legs black or piceous; tegmina creamy-white, extreme base suffused with ochraceous,

costal, apical, and posterior margins (broken near middle of costa), a curved longitudinal discal fascia, and an apical submarginal curved fascia black; wings creamy-white.

Length excl. tegm. 10 to 16; exp. tegm. 39 to 57 millim.

Hab. Malabar (*Brit. Mus.*). Burma; Momeit (*Doherty*).—Sumatra, Java, Borneo.

The Malayan forms are a little darker in hue, with the black fasciæ to the tegmina broader and less dislocated on costal margin.

Division *FLATARIA*.

I propose this division for a series of genera which have the apical margins of the tegmina truncate and not rounded; the posterior angles of the apical margins are also always more or less subacutely produced.

The *Flataria* are principally represented in the Ethiopian and Oriental Regions.

Synopsis of Genera.

A. Head with the vertex more or less subacutely produced.
- a. Tegmina about, or nearly, twice as broad as long.
  - *a*. Radial vein not emitting a longitudinal vein.
    - *a'*. Costal membrane about as broad as radial area, the latter reticulately veined .... PHYLLYPHANTA, p. 414.
    - *b'*. Costal membrane narrower than radial area, the latter obliquely reticulately veined.............. PULASTYA, p. 417.
  - *b*. Radial vein emitting a longitudinal vein at a short distance from base .. SALURNIS, p. 418.
- b. Tegmina considerably less than twice as broad as long .... PULAHA, p. 419.

B. Head with the vertex broadly and moderately subconically produced .... LAWANA, p. 420.

C. Head with the vertex short, anteriorly truncate or angularly truncate.
- a Costal membrane of tegmina smooth, not granulose.
  - *a*. Vertex of head about half as long as broad.
    - *a'*. Costal membrane of tegmina narrower than radial area .... SCARPANTINA, p. 422.
    - *b'*. Costal membrane of tegmina slightly wider than radial area .... COLOBESTHES, p. 423.
  - *b*. Vertex of head less than half as long as broad .... DAKSHA, p. 425.
  - *c*. Vertex of head very narrow, almost only appearing as a transverse ridge in front of pronotum.............. FLATA, p. 427.
- b. Costal membrane of tegmina granulose . SATAPA, p. 426.

Genus PHYLLYPHANTA.

Phyllyphanta, *Amy. & Serv. Hém.* p. 522 (1843); *Melich.* (part.) *Ann. Hofmus. Wien,* xvii. p. 54 (1902); *Kirk. Entomologist,* 1903, p. 79.
Cromna, *Walk. J. Linn. Soc., Zool.* i. p. 85 (1857) *.

Type, *P. producta,* Spin., from the Malayan Archipelago.
Distribution. Oriental and Malayan Regions.

Head (including eyes) a little narrower than pronotum; vertex somewhat longly and subacutely produced in front, centrally ridged, its lateral areas oblique; face longer than broad, smooth, its base angularly narrowed, its lateral margins slightly ridged; clypeus more or less obliquely striate on its lateral areas; pronotum extending before the anterior margins of eyes, strongly centrally carinate, obliquely deflected on each side; mesonotum long, obliquely deflected on each side, tricarinate; posterior tibiæ bispinose; tegmina as broad or slightly broader than wings, apically ampliate, the costal margin arched and convex, the apical margin truncate, its posterior angle angularly or subangularly produced; costal membrane about as broad or slightly narrower than radial area, the former somewhat closely transversely veined, many of the veins furcate, the latter reticulately veined, all the tegmen more or less transversely reticulate except on apical margin, where the veins are shortly longitudinal defining a marginal series of elongate cellular areas; clavus transversely veined above the claval vein, beneath it coarsely granulate; wings with one or two transverse veins near apex, many of the longitudinal veins furcate.

2005. **Phyllyphanta andamanensis**, sp. n.

Body beneath and legs virescent with an ochraceous tint, tarsi

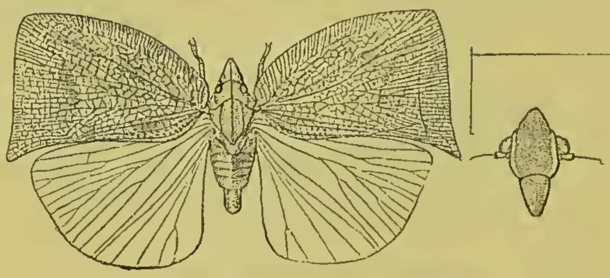

Fig. 214.—*Phyllyphanta andamanensis.*

ochraceous; head with the vertex centrally longitudinally paler, central carination to pronotum, carinations and anterior margin to mesonotum also paler in hue; face, body beneath, and legs a

* Melichar (*supra*) has included *Cromna,* Walk. (J. Linn. Soc., Zool. i. p. 85, 1857), as a synonym of *Phyllyphanta,* but shortly after, in his Monograph (p. 58), he treats it as a distinct genus, incorrectly giving the type as *C. peracuta,* Walk., which is really the type of *Colgar,* Kirk.

little paler than above; tegmina virescent, the extreme costal margin a little ochraceous; wings creamy-white; eyes fuscous-brown and situate on each side of the produced pronotum, the lateral areas of which are distinctly rugose or subgranulose; mesonotum obscurely transversely striate between the longitudinal carinations, the lateral areas smooth; face smooth, very faintly, obscurely, and abbreviately carinate; tegmina with the radial and basal longitudinal veins a little prominent, the claval granulations very coarse.

Length excl. tegm. 11; exp. tegm. 32 millim.

Hab. Andaman Islands (*Coll. Dist.*).

2006. **Phyllyphanta albopunctata**, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 156, t. vi, f. 5 (1891); *Melich.* (Phyma) *Ann. Hofmus. Wien,* xvii, p. 47 (1902).

Head (including face), thorax above, and legs dark virescent; abdomen, anterior angle of face, and the clypeus brownish-ochraceous; tegmina virescent, the cellular areas more or less greyishly tomentose, particularly so near the radial vein, and more prominently so and forming two narrow discal fasciæ,

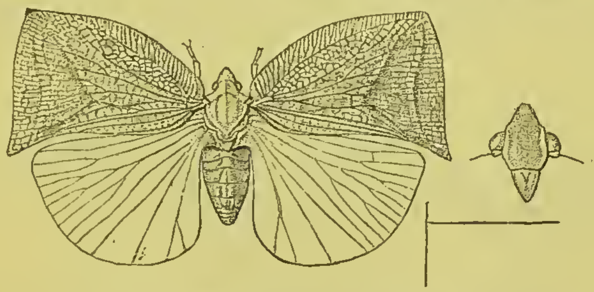

Fig. 215.—*Phyllyphanta albopunctata.*

the innermost oblique and situate a little beyond middle, the other near apical margin, the extreme costal and apical margins palely testaceous; wings creamy-white, the venation a little darker; vertex of head directed a little obliquely upward, the face smooth; lateral areas of pronotum very faintly and sparingly granulose; mesonotum almost smooth between the longitudinal carinations; tegmina with the radial and basal longitudinal veins moderately prominent.

Length excl. tegm. 11; exp. tegm. 30 millim.

Hab. Ceylon (*Green*).

2007. **Phyllyphanta sinensis**, *Walk.* (Pœciloptera) *List Hom.* ii, p. 451 (1851); *Stål, Öfv. Vet.-Ak. Förh.* 1862, p. 489; *Atkins.* (Flata) *J. A. S. Beng.* lv, p. 76 (1886); *Melich.* (Phyllyphanta) *Ann. Hofmus. Wien,* xvii, p. 56 (1902).

Pœciloptera cereris, *Stål, Öfv. Vet.-Ak. Förh.* 1854, p. 247.

Head, pronotum, and mesonotum virescent; margins and

central carination to pronotum darker green; mesonotum between the carinations pale testaceous, the latter and the lateral areas darker green; abdomen, face, body beneath, and legs pale greenish-ochraceous; tegmina creamy-white with the venation very pale ochraceous, the costal membrane and apical area more virescent, a series of very small fuscous spots on apical margin extending to apex of costal margin and to apical third of posterior margin; wings creamy-white; lateral areas of pronotum sparingly granulose; mesonotum between the longitudinal carinations smooth; tegmina with the radial and basal longitudinal veins scarcely or not prominent.

Length excl. tegm. 8; exp. tegm. 22 millim.

Fig. 216.—*Phyllyphanta sinensis.*

Hab. Assam (*fide Melichar*). Ceylon; Yatiyantota (*Green*). Burma; Ruby Mines (*Doherty*).—Penang. Siam. Cochin China. Cambodia. Celebes (*Coll. Dist.*). China.

2008. **Phyllyphanta? angulifera,** *Walk.* (Cromna) *Ins. Saund., Hom.* p. 57 (1858); *Atkins.* (Flata) *J. A. S. Beng.* lv, p. 70 (1886).

"Testaceous varied with green; head elongate, acutely conical; face with elevated borders, not keeled; face lanceolate; thorax flat in the disk, with a slight ridge along each side; pronotum transverse, slightly arched; tegmina green, slightly testaceous along the interior border, with few veins and very few transverse veinlets in the disk; marginal veinlets numerous, moderately long; costa convex for two-thirds of the length from the base, very slightly concave from thence to the tip, which is rectangular like the interior angle, exterior border straight; wings white."

"Length of the body 2 lines; of the wings 5 lines." (*Walker.*)

Hab. "Hindostan."

I have not seen this species.

Genus PULASTYA, nov.

Type, *P. acutipennis*, Kirby.

Distribution. Oriental and Malayan Regions.

Allied to *Phyllyphanta*, but differing by the much less produced vertex of head and by the tegmina having the costal membrane considerably narrower than the radial area, the latter having distinct oblique transverse veins which are reticulately connected.

2009. **Pulastya acutipennis**, *Kirby* (Phyllyphanta), *J. Linn. Soc., Zool.* xxiv, p. 156, t. vi, f. 6 (1891).
Phyllyphanta dubia, *Kirby, tom. cit.* p. 157.
Flata cornutipennis, *Kirk. J. Nat. Hist. Soc. Bomb.* xiv, p. 53 (1901); *Melich.* (Phyllyphanta) (part.) *Ann. Hofmus. Wien,* xvii, p. 55, t. iii, f. 10 (1902).

Body more or less virescent, legs pale ochraceous; head, pronotum, and mesonotum with a central longitudinal pale castaneous fascia which contains a central darker line; tegmina pale virescent, becoming somewhat pale tawny towards apical area, most of the cellular areas very obscurely centrally greyish, the posterior margin

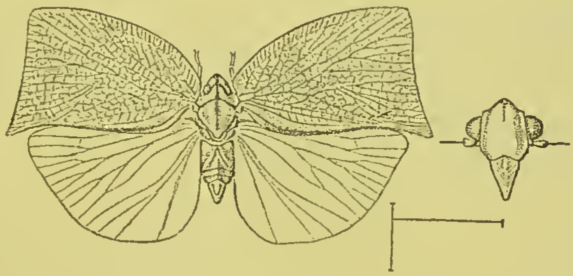

Fig. 217.—*Pulastya acutipennis.*

from a short distance from base to end of claval area pale brownish, and thence to outer angle finely spotted with pale brownish; wings creamy-white.

Length excl. tegm. 8 to 9; exp. tegm. 25 to 26 millim.

Hab. Ceylon; Maskeliya, Kandy (*Green*). Tenasserim; Myitta (*Doherty*).

Kirkaldy proposed the name of *cornutipennis* for this species, considering it was congeneric with *acutipennis*, Walk., a species of *Phyllyphanta*, and therefore was clearly preoccupied. In my view the two species belong to different genera, and hence Kirby's name stands.

Genus SALURNIS.

Salurnis, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 773; *Melich. Ann. Hofmus. Wien*, xvii, p. 40 (1902).

Type, *S. granulosa*, Stål, from the Philippines.

Distribution. Oriental and Malayan Regions.

Head (including eyes) a little narrower than pronotum, vertex moderately conically produced; face a little longer than broad, a little posteriorly and more strongly anteriorly narrowed; pronotum strongly subconically produced; mesonotum long, tricarinate; posterior tibiæ with one spine near apex; tegmina about as broad as the wings, apically ampliate, costal margin rounded, apical margin truncate, its posterior angle more or less acutely produced; costal membrane narrower than radial area, the first transversely veined, the latter obliquely reticulate, radial vein forked and emitting a longitudinal vein at a short distance from base, two lower longitudinal veins transversely united before middle, the whole tegmen more or less transversely reticulate, upper area of clavus transversely veined, lower area granulose; wings with two transverse veins near apex, some of the longitudinal veins bifurcating outwardly.

2010. **Salurnis marginellus**, *Guér.* (Ricania) *Voy. 'La Coquille,' Zool.* (2) p. 192 (1830); *id. Icon. Règn. Anim., Ins.* t. 58, f. 6 (1843); *id. Voy. Bélang. Ind. Orient.* p. 467 (1834); *Atkins.* (Flata) *J. A. S. Beng.* lv, p. 69 (1886); *Melich.* (Salurnis) *Ann. Hofmus. Wien*, xvii, p. 41, t. v, f. 6 (1902).

Pœciloptera fimbriolata, *Stål, Öfv. Vet.-Ak. Förh.* 1854, p. 247; *id.* (Phyllyphanta) *t. c.* 1865, p. 159.

Head, pronotum, sternum, and legs ochraceous, abdomen dull greyish-brown; head, pronotum, and mesonotum with two central

Fig. 218.—*Salurnis marginellus.*

contiguous castaneous lines, outwardly margined with paler castaneous; face with the basal angle pale castaneous; tegmina

yellow or greenish-yellow, the margins pale castaneous-brown, the posterior margin spotted, and a distinct spot at end of clavus, the cellular areas finely greyish, and giving the appearance of what Stål described as "subtiliter granulata"; wings cretaceous-white; in some specimens the mesonotum is narrowly bilineately pale castaneous and gives indication of another more obscure linear fascia on each lateral area.

Length excl. tegm. 7; exp. tegm. 20 to 22 millim.

Hab. Sikhim (*fide Melichar*). Great Nicobar (*Coll. Dist.*). Tenasserim; Myitta (*Doherty*).—Malay Peninsula. Borneo. China (*fide Melichar*).

2011. **Salurnis uniformis**, sp. n.

Body and legs pale brownish-ochraceous; tegmina greenish-ochraceous, basal half of costal membrane and the claval area a little darker and more brownish, extreme apical margin and outer third of posterior margin narrowly pale testaceous, claval granulations brown; wings creamy-white; vertex of head a little conically and upwardly produced; pronotum with an obsolete central carination; mesonotum distinctly tricarinate; abdomen above with some white cottony excrescence at base; tegmina with the apical margin a little sinuate, the posterior angle shortly subacutely produced, radial vein emitting the first longitudinal vein at a short distance from its base, radial area strongly obliquely reticulate.

Length excl. tegm. 8; exp. tegm. 26 millim.

Hab. Burma; Karen Hills (*Doherty*).

Genus **PULAHA**, nov.

Type, *P. contracta*, Dist.

Distribution. British India.

Head (including eyes) a little narrower than pronotum, vertex conically produced in front of eyes; face much narrowed at base, less narrowed towards clypeus; pronotum scarcely broader than vertex, anteriorly concavely produced, centrally carinate; mesonotum tricarinate; tegmina short and broad, less than twice as long as broad, costal margin arched and rounded at base, apical margin truncate, the posterior angle acutely produced, costal membrane a little broader than radial area, the first obliquely transversely veined, its basal area rugosely reticulate; longitudinal veins strongly bifurcating, clavus coarsely granulose; posterior tibiæ bispinose.

2012. **Pulaha contracta**, sp. n.

Body, legs, and tegmina uniformly ochraceous; costal membrane

as seen from above when tegmina are closed appearing as a basal lateral projection; mesonotum with the area of the carinations forming an ovate slightly raised process; in some specimens the costal area of the tegmina is distinctly pale virescent; basal area of costal membrane and the clavus coarsely granulose, all the longitudinal veins to tegmina prominent and slightly raised, and more or less transversely reticulate towards apical area; legs somewhat short and stout.

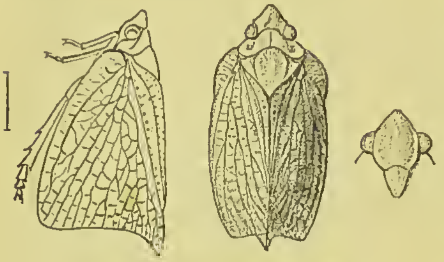

Fig. 219.—*Pulaha contracta.*

Length incl. tegm. 7 millim.

Hab. Nilgiri Hills (*Hampson*).

Genus **LAWANA**, n. nom.

Phyma, *Melich. Ann. Hofmus. Wien*, xvii, p. 43 (1903), præocc. Col.

Type, *L. candida*, Fabr., a Malayan species.

Distribution. Ethiopian, Oriental, Malayan, and Neotropical Regions (*fide Melichar*).

Head (including eyes) narrower than pronotum; vertex broadly subconical, moderately upwardly and forwardly produced, non-carinate, smooth, the basal lateral margins laminately elevated; face moderately convex, basally centrally very obscurely carinate, the lateral margins broadly laminately ridged, the apex slightly and the base more distinctly narrowed; pronotum about as long as vertex, centrally carinate, the anterior margin carinate, a little sinuate, and produced to anterior margins of eyes, posterior margin strongly concave; mesonotum tricarinate; posterior tibiæ obscurely spinose; tegmina narrower than the wings, somewhat elongate, apically ampliate, costal margin rounded, apical margin truncate, its posterior angle subacutely produced, costal membrane nearly as broad or very slightly narrower than radial area, the former somewhat closely transversely veined, the latter reticulately veined, two longitudinal veins emitted beneath radial vein, both forked before middle, nearly the whole disk transversely reticulately veined, the outer area of the posterior margin with close short oblique veins, upper area of clavus sparsely transversely veined, lower claval area finely granulose; wings considerably veined in anal area, two transverse veins near apex, several of the longitudinal veins bifurcate outwardly.

2013. **Lawana conspersa**, *Walk.* (Colobesthes) *List Hom.* ii, p. 440 (1851); *id.* (Pœciloptera) *Ins. Saund., Hom.* p. 51 (1858); *Atkins.* (Flata) *J. A. S. Beng.* lv, p. 72 (1886); *Melich.* (Phyma) *Ann. Hofmus. Wien*, xvii, p. 46, t. iii, f. 14 (1902).

Body and legs dull ochraceous; tegmina creamy-white or very

pale ochraceous, somewhat thickly sprinkled with small irregular fuscous spots, sometimes many of the short reticulate veins being of that colour, which give a narrow fasciate appearance, but are

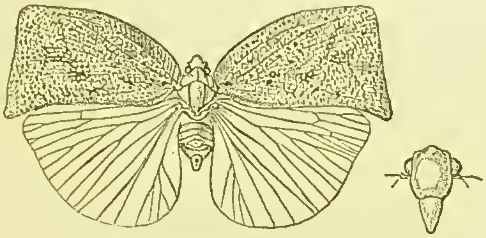

Fig. 220.—*Lawana conspersa.*

not constant in character; wings creamy-white, distinctly wider than the tegmina.

Length excl. tegm. 10 to 14; exp. tegm. 33 to 45 millim.

Hab. Sylhet; Assam (*Brit. Mus.*). Sikhim. Calcutta (*Ind. Mus.*). Darjiling (*Coll. Dist.*). Ceylon (*Coll. Dist.*). Burma; Karen Hills (*Doherty*).—Japan (*Coll. Dist.*).

2014. **Lawana radiata**, sp. n.

Body and legs ochraceous (abdomen mutilated in typical specimen); tegmina greyish with a faint roseate tint, and with two orange-yellow linear fasciæ radiating from base, the uppermost extending along radial vein, the other directed almost along inner claval margin, apical margin with its posterior angle distinctly palely roseate; wings creamy-white; vertex of head broadly conical; face smooth, the lateral margins distinctly broadly ridged, the base broadly subconical; pronotum very indistinctly centrally carinate; mesonotum with the longitudinal carinations well pronounced; posterior tibiæ very obscurely spinose; tegmina with the posterior angle strongly somewhat broadly angularly produced, the posterior margin moderately concavely sinuate, apical angle somewhat rounded, venation fine, radial vein most pronounced.

Exp. tegm. 47 millim. (abdomen mutilated).

Hab. Cachar (*Atkinson Coll., Brit. Mus.*).

2015. **Lawana ? bicarinata**, sp. n.

Body pale virescent, legs pale ochraceous; tegmina pale virescent, apical margin (including apical angle) and outer third of posterior margin finely piceously maculate; wings creamy-white; vertex somewhat strongly conically produced; eyes brown; face convex, the lateral margins broadly ridged, the base narrowly conically produced; pronotum with two central carinations; mesonotum long, distinctly tricarinate; abdomen above pale greyish-virescent;

tegmina with the apical angle moderately rounded, apical margin straight, posterior angle shortly subacutely produced; clavus coarsely granulose beneath claval vein.

Length excl. tegm. 8; exp. tegm. 23 millim.

Hab. Bhutan (*Coll. Dist.*).

This species, here included in *Lawana*, differs in typical generic characters by the bicarination of the pronotum; as I have, however, only a single specimen, and the thorax is rather compressed, I have placed it provisionally in the genus.

Genus **SCARPANTINA**.

Scarpantina, *Melich. Ann. Hofmus. Wien*, xvi, p. 243 (1901).

Type, *S. stigmatica*, Melich., from Borneo.

Distribution. Oriental and Malayan Regions.

Head (including eyes) much narrower than pronotum; vertex broader than long, a little widened anteriorly, centrally carinate and with the lateral margins laminately ridged; face only slightly longer than broad, non-carinate, a little narrowed towards clypeus, which is somewhat long; pronotum anteriorly subconvex, produced to about middle of eyes, tricarinate, beyond the carinate area broadly longitudinally furrowed behind eyes; mesonotum long, convex, tricarinate, the carinations obliquely transversely united near anterior margin; posterior tibiæ bispinose; tegmina apically ampliated, about as broad as wings, costal margin arched and convex, apical margin truncate, angularly produced at posterior angle, costal membrane narrower than radial area, the former somewhat closely transversely veined, the latter more sparingly obliquely veined with some of the veins furcate, radial vein somewhat thickened and prominent, second longitudinal vein strongly furcate at a short distance from base, the whole area below radial vein more or less transversely reticulate, on apical margin the veins are shortly furcate, upper area of clavus transversely veined, lower area somewhat coarsely granulose; wings with two transverse veins on apical area, many of the longitudinal veins furcate.

2016. **Scarpantina bimaculata**, sp. n.

Body and legs ochraceous, the posterior legs greenish-ochraceous, the abdomen above more or less greyishly tomentose; tegmina virescent, the margin very slightly and narrowly pale ochraceous, the radial vein distinctly greyish, two oblique slightly waved greyish fasciæ on disk, the innermost just beyond middle and narrowly reflected toward base along the lower longitudinal vein, the outermost on apical area, each fascia near its middle enclosing or nearly enclosing a small but prominent fuscous spot, a series of widely separated small fuscous linear spots beneath radial vein

and some similar spots scattered above clavus, some faint greyish suffusions on central disk near base, and some similar faint

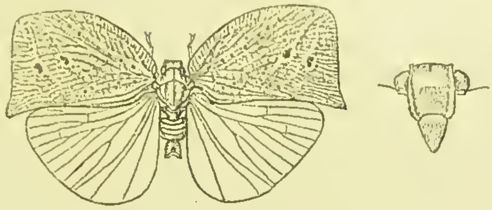

Fig. 221.—*Scarpantina bimaculata.*

suffusions on apical area; wings cretaceous-white, slightly and narrowly ochraceous at extreme base.

Length excl. tegm. 10; exp. tegm. 34 millim.

Hab. S. India; Trivandrum (*Brit. Mus. & Coll. Dist.*).

2017. **Scarpantina modesta**, sp. n.

Body and legs pale ochraceous, apices of the tarsi piceous; tegmina pale yellow, with short scattered fuscous linear spots beneath radial vein and above clavus, two larger fuscous spots on central disk of apical area, some very minute scattered fuscous spots at base and near apical margin, the extreme margins very faintly and narrowly pale ochraceous; wings cretaceous-white.

Length excl. tegm. 9; exp. tegm. 32 millim.

Hab. S. India; Trivandrum (*Brit. Mus.*).

Beside the very different colour and markings which distinguish this species from the preceding (*S. bimaculata*), the tegmina have the radial vein concolorous and less prominent, and the posterior angle of the apical margin is slightly less produced.

Genus COLOBESTHES.

Colobesthes, *Amy. & Serv. Hem.* p. 522 (1843); *Melich. Ann Hofmus. Wien*, xvii, p. 42 (1902).

Type, *C. falcata*, Guér.

Distribution. Oriental and Malayan Regions.

Head (including eyes) a little narrower than pronotum; vertex about half as long as broad, obliquely widened anteriorly, the anterior margin broadly subtruncate; face convex, a little narrowed posteriorly, the lateral margins very broadly ridged, a strong central carination not extending much beyond half its length, its apex attached to a very obscure transversely curved ridge, and on each side followed by an obscure discal curved carination; pronotum about as long as vertex, centrally sinuate at anterior margin, which extends to the latitude of the middle of eyes, centrally somewhat obscurely carinate; mesonotum tricarinate; posterior

tibiæ bispinose; tegmina about as broad as the wings, apically ampliated, the costal margin a little rounded, the apical margin truncate with the posterior angle subacutely produced, costal membrane slightly wider than radial area, the former somewhat closely transversely veined, the latter obliquely subreticulate, two longitudinal veins emitted beneath radial vein, the lower one forked at a short distance from base, the upper one bifurcate at about one-third from base, most of the tegmen is obscurely transversely reticulate, a distinct line formed of transverse veins near apical margin defining a marginal series of narrow longitudinal cellular areas; wings with two transverse veins on apical area, many of the longitudinal veins bifurcating outwardly.

2018. **Colobesthes falcata,** *Guér.* (Pœciloptera) *Voy. Bélang.* p. 469, t. iii, f. 5 (1834); *Spin. Ann. Soc. Ent. Fr.* 1839, p. 430; *Amy. & Serv.* (Colobesthes) *Hém.* p. 523 (1843); *Atkins.* (Flata) *J. A. S. Beng.* lv, p. 71 (1886); *Melich.* (Colobesthes) (part.) *Ann. Hofmus. Wien*, xvii, p. 43 (1902).
Colobesthes albiplana, *Walk. J. Linn. Soc., Zool.* i, p. 92 (1857).

Body and legs dull ochraceous; tegmina creamy-white, pale or dark virescent and sometimes fawn-coloured (the last probably due to discoloration), in the darker-coloured tegmina there is usually a discal cretaceous spot beyond middle, and the anterior and apical

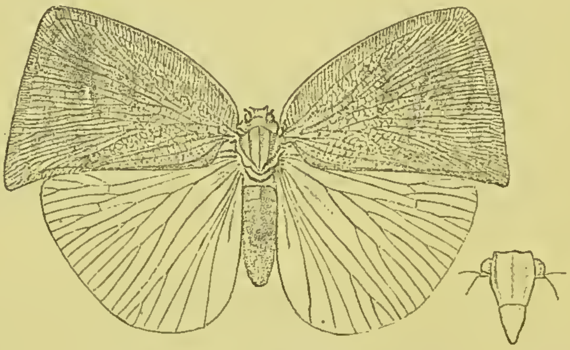

Fig. 222.—*Colobesthes falcata.*

margins and the outer half of posterior margin at the area of the short oblique veins ochraceous; wings creamy-white.

Length excl. tegm. 16 to 20; exp. tegm. 50 to 56 millim.

Hab. Burma (*fide Atkinson*).—Malay Peninsula. Sumatra. Java. Borneo.

The produced posterior angles of the tegmina vary in length and development, the specimen figured above showing the minimum in that direction.

Melichar has included in the synonymy of the above the species described by Walker as *Pœciloptera addita* = *P. plana*, Walk., which is not congeneric, an error the more strange as Walker has referred to a figure given by Stoll as representing his *P. addita*.

Genus DAKSHA, nov.

Type, *D. marginata*, Walk.

Distribution. Oriental and Malayan Regions.

Head (including eyes) considerably narrower than pronotum; vertex short, very much broader than long, its anterior margin moderately obliquely angular on each side, centrally carinate, its lateral margins ampliately striated; face longer than broad, slightly convex, its lateral margins prominently laminately ridged, with a central carination extending for about half its length from base and followed on each side by an obscure curved carination, which meet anteriorly and posteriorly, thus enclosing the distinct central one; clypeus long with a central carinate line; pronotum considerably longer than vertex with a distinct central carination, on each side of which the disk is anteriorly obliquely channelled, its posterior margin strongly concave; mesonotum long, tricarinate;

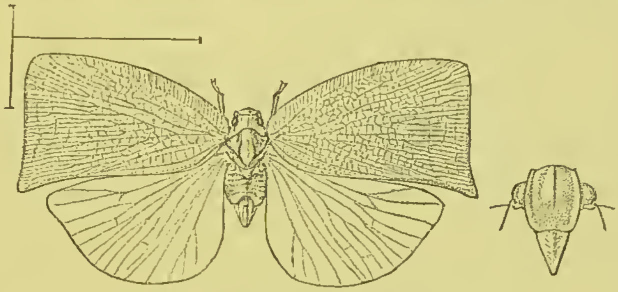

Fig. 223.—*Daksha marginata.*

posterior tibiæ with a moderately long robust spine; tegmina ampliated at apical area, where they are as broad as wings, the costal margin a little rounded, the apex almost subacute, apical margin sinuately truncate, posterior angle acutely produced, costal membrane about as wide as greatest breadth of radial area, the former somewhat closely transversely veined, the latter obliquely reticulate, two longitudinal veins emitted from lower end of cell beneath the radial vein, both strongly furcate, the first near, the second before middle, all the veins distinctly transversely reticulate on middle disk, much less distinctly so on apical area, where the veins are close and longitudinal and mostly furcate on apical margin, clavus transversely veined above the claval vein, beneath it granulose, about outer half of posterior margin obliquely transversely veined; wings with a few discal transverse veins, apical portion of anal area distinctly obliquely veined.

2019. **Daksha marginata**, *Walk.* (Colobesthes) *J. Linn. Soc., Zool.* i, p. 92 (1857); *Atkins.* (Flata) *J. A. S. Beng.* lv, p. 73 (1886); *Melich.* (Nephesa) *Ann. Hofmus. Wien*, xvii, p. 106 (1902).

Body and legs pale ochraceous; pronotum obscurely virescent;

tegmina very pale greenish-grey, their extreme margins ochraceous and the outer half of the posterior margin at the area of the oblique veins ochraceous, sometimes a small fuscous spot or fuscous suffusions on the posterior angulate prolongation of the apical margin; wings creamy-white; pronotum with the anterior central excavation subtriangular, traversed by the central carination and with its lateral margins obscurely ridged; mesonotum with the lateral carinations curved inwardly before anterior margin, the area enclosed by the carinations slightly testaceous.

Length excl. tegm. 10; exp. tegm. 40 millim.

Hab. Burma (*fide Atkinson*).—Malay Peninsula. Borneo.

Genus **SATAPA**, nov.

Type, *S. sicula*, Dist.

Distribution. Ceylon.

Head (including eyes) a little narrower than pronotum; vertex much broader than long, its anterior margin a little roundly truncate; face about as broad as long, centrally and marginally carinate; pronotum scarcely as long as vertex, centrally carinate, posterior margin angularly emarginate; mesonotum very obscurely tricarinate; legs short, posterior tibiæ not spined; tegmina short, not twice as broad as long, costal margin strongly convexly arched and a little sinuate before apex, apical margin strongly truncately sinuate, the posterior angle broadly subacutely produced, costal membrane about as broad as radial area, sparingly granulose, radial vein moderately dilated, all the veins prominent, on apical area somewhat transversely reticulate, a submarginal apical line formed of transverse nervures defining a marginal series of cellular areas, clavus very broad, its basal posterior area very coarsely granulose; wings with the veins furcate near outer area.

2020. **Satapa sicula**, sp. n.

Head, pronotum, body beneath, and legs brownish-ochraceous,

Fig. 224.—*Satapa sicula.*

mesonotum and abdomen above darker brown; tegmina pale tawny-brown, the venation fuscous, an elongate greyish spot

extending from near apex of costal margin to about middle of tegmen, this spot is outwardly margined with fuscous, the tegmen is a little suffused with fuscous at base and beyond middle; wings greyish, very slightly tinged with pale fuliginous, the veins fuliginous; margins of vertex finely ridged; eyes piceous; tegmina with the costal membrane sparingly coarsely granulose, posterior basal margin of clavus broadly obliquely thickly granulose, the surface of the tegmen is not flat but a little unevenly inflated, the claval commissure being very pronounced and the clavus medially obliquely gibbous.

Length excl. tegm. 4; exp. tegm. 13 millim.

Hab. Ceylon; Puttalam (*Green*).

2021. **Satapa granulosa**, sp. n.

Body and legs very pale tawny-brown; tegmina pale tawny-brown, obscurely greyishly tomentose, especially on the veins which are very prominent, costal membrane and posterior basal margin of clavus very coarsely granulose, the disk very unevenly inflated, the costal membrane and clavus obliquely divergent, the first deflected, the latter reflected, apical margin distinctly darker brown between the veins; wings greyish-white, the venation pale brownish. Differs from *S. sicula* in having the posterior angle of the tegmen a little less produced and outwardly recurved, the apical angle considerably less rounded, the costal margin less regularly convex and distinctly sinuate near middle; in the type specimen, which is here described, the apex of the abdomen is furnished with a long white cottony appendage.

Length excl. tegm. 5; exp. tegm. 15 millim.

Hab. Bombay (*Coll. Dist.*).

Genus FLATA.

Flata, *Fabr. Ent. Syst. Suppl.* pp. 511 & 517 (1798); *Stål* (part.), *Hem. Afr.* iv, p. 241 (1866).

Cryptoflata, *Melich.* (part.) *Ann. Hofmus. Wien*, xvii, p. 19 (1902).

Type, *F. ocellata*, Fabr.

Distribution. Oriental, Malayan, and Ethiopian Regions.

Head (including eyes) a little narrower than pronotum; vertex broad and very narrow, almost appearing as a transverse ridge in front of pronotum; face a little longer than broad, centrally anteriorly carinate, the lateral margins moderately ridged; clypeus subtriangular; pronotum somewhat broad, conically produced between eyes, centrally carinate; mesonotum long, tricarinate, the lateral carinations obscure; posterior tibiæ obscurely spinose; tegmina about or nearly twice as long as broad, the costal margin a little rounded, the apical margin truncate, its posterior angle a little acutely produced, costal membrane about as broad as radial area, the former somewhat closely transversely veined, the latter

reticulately veined, two longitudinal veins emitted close together beneath the radial vein, both furcate, the first at about middle, the second before middle, the whole tegmen more or less transversely reticulate, a distinct subapical line formed of transverse veins defining a marginal series of longitudinal areas; wings with two transverse veins near apex, some of the longitudinal veins outwardly bifurcating.

2022. **Flata ocellata**, *Fabr.* (Cicada) *Syst. Ent.* p. 682. 1 (1775); *id.* (Flata) *Ent. Syst. Suppl.* p. 517. 2 (1798); *Spin.* (Pœciloptera) *Ann. Soc. Ent.* Fr. 1839, p. 441; *Germ.* (Ricania) *Mag. Ent.* iii, p. 224 (1818); *Stål* (Flata), *Hem. Fabr.* ii, p. 107 (1869); *Atkins. J. A. S. Beng.* lv, p. 68 (1886); *Kirk. J. Nat. Hist. Soc. Bomb.* xiv, p. 53, t. A, f. 5 (1902); *Melich.* (Cryptoflata) *Ann. Hofmus. Wien,* xvii, p. 21, t. iii, f. 19 (1902).
Pœciloptera stellaris, *Walk. List Hom.* ii, p. 453 (1851).
Pœciloptera argiolus, *Stål, Öfv. Vet.-Ak. Förh.* 1855, p. 191.
Cryptoflata flavoguttata, *Melich. Ann. Hofmus. Wien,* xvii, p. 21 (1902).

Body and legs pale ochraceous or greenish-ochraceous, the pronotum and mesonotum sometimes not concolorous; tegmina very pale virescent, the venation a little darker, interspersed with small dull sanguineous spots, extreme edges of costal and posterior margins pale ochraceous; wings creamy-white; tegmina with the

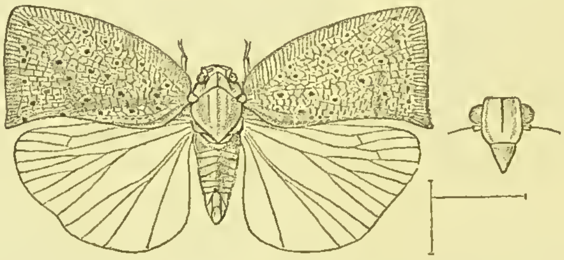

Fig. 225.—*Flata ocellata.*

clavus somewhat coarsely granulose, the costal membrane slightly cretaceously tomentose, the apical margin a little sinuate before posterior angle.

Length excl. tegm. 8; exp. tegm. 23 millim.

Hab. Tranquebar. Ceylon; Kandy and Kelani Valley (*Green*).

I cannot separate the Ceylonese form, described by Melichar as *flavoguttata*, from typical *F. ocellata*. Its describer writes: "Very like *ocellata*, but considerably larger (only 2 millim. in length): body pale yellow; two strong orange-yellow longitudinal stripes on pronotum and mesonotum; tegmina pale yellowish or greenish-white with numerous large scattered orange-yellow spots; in *ocellata* the spots are very small and generally exhibit a dark central dot; otherwise like *ocellata*, and perhaps only a variety."

2023. **Flata ferrugata**, *Fabr.* (Flata) *Syst. Rhyng.* p. 50. 19 (1803); *Stål, Hem. Fabr.* ii, p. 108 (1869); *Atkins. J. A. S. Beng.* lv, p. 68 (1886); *Melich.* (Cryptoflata) *Ann. Hofmus. Wien,* xvii, p. 22 (1902).

Pœciloptera antica, *Walk. List Hom.* ii, p. 456 (1851); *Atkins.* (Flata) *J. A. S. Beng.* lv, p. 73 (1886).

Pœciloptera indocilis, *Walk. Ins. Saund., Hom.* p. 55 (1858); *Atkins.* (Flata) *J. A. S. Beng.* lv. p. 70 (1886).

I have compared the types of both species of Walker (*supra*) with the description given by Stål, who had examined the type of the Fabrician species of *F. ferrugata*, and agree with Melichar in considering them as conspecific. Stål's description is here reproduced:—"Very palely subtestaceous flavescent, here and there covered with a whitish powdery substance; wings whitish; apical margins of the last two segments of the abdomen, in ♀ at least, black towards the sides; very close to *F. ocellata*, Fabr., hardly differing, except in coloration, unless in having the apical commissural angle of the tegmina a little less produced and somewhat straight, not distinctly acute; pronotum with a less distinct single median ridge; head truncate, vertex very obtusely angulated anteriorly, concealed by the pronotum; face a little longer than its breadth beneath the middle, gradually slightly amplified from the base to beyond the middle, thence on both sides obtusely rounded and furnished with an obtuse median ridge running through it, slightly impressed on both sides within the lateral margins, not tumescent at the base; pronotum with a median ridge." (*Stål.*)

In some specimens the tegmina are virescent, in others suffused with ochraceous or flavescent-testaceous, or wholly of that colour, or in some virescent specimens the extreme margins of the tegmina are dull ochraceous or testaceous.

Length excl. tegm. 7 to 8; exp. tegm. 17 to 26 millim.

Hab. Tranquebar. Kangra Valley (*Dudgeon*). Deccan (*Day*). Himalaya (*Coll. Dist.*). Ceylon; Maskeliya (*Green*).

Division *NEPHESARIA*.

Tegmina never twice longer than broad, usually about one and a half times as long, the apical margin truncate, but the posterior angle not produced; wings generally as broad, or nearly as broad, as the tegmina.

This division comprises a large number of genera found in all the warmer regions of the world and our knowledge of it is at present very limited. To it belong many of those small *Flatinæ* which have a somewhat common facies, but which when the venation of the tegmina and other characters are studied are found to belong to the most divergent genera. They have been little collected, but are as interesting, and deserve as much attention, as the Micro-Lepidoptera.

In British India alone a large collection could be made, and these remarks apply also to the preceding and following divisions.

Synopsis of Genera.

A. Tegmina more or less discally transversely veined.
  a. Tegmina with two transverse lines formed of transverse veins on apical area before apical margin .... MELICHARIA, p. 430.
  b. Tegmina with a single transverse line formed of transverse veins on apical area before apical margin .... HILAVRITA, p. 432.
  c. Tegmina without a transverse line before apical margin.
    a. Tegmina with an apical marginal series of longitudinal cellular areas formed by the furcation of the longitudinal veins.
      a'. Face tricarinate; tegmina not convexly arched at base, nearly straight. NEPHESA, p. 434.
      b'. Face unicarinate; tegmina strongly arched at base .... CRYPTOFLATA, p. 435.
    b. Tegmina without a regular apical marginal series of longitudinal cellular areas.
      a'. Pronotum twice as long as vertex of head; clypeus laterally transversely striate .... NAKTA, p. 436.
      b'. Pronotum a little longer than vertex of head; clypeus not striate ...... UNNATA, p. 437.
B. Whole discal area of tegmina without transverse veins .... TEJASA, p. 438.

Genus MELICHARIA.

Melicharia, *Kirk. Entomologist*, xxxiii, p. 294 (1900).
Ormenis, *Melich.* (part.) *Ann. Hofmus. Wien*, xvii, p. 64 (1902).

Type, *M. quadrata*, Kirby.

Distribution. Oriental and, probably, Malayan Regions.

Head (including eyes) a little narrower than pronotum; vertex much broader than long, centrally and laterally strongly carinate, a little obliquely broadened anteriorly, the anterior margin truncate; face broad with a central carination extending about halfway from base, the lateral margins very broadly reflexed; clypeus elongate; posterior tibiæ with two spines, the apical one short; pronotum a little longer than vertex, distinctly centrally carinate; mesonotum long, tricarinate; tegmina about one and a half times, or nearly twice, as long as broad, the costal margin very slightly rounded, the apical margin truncate, the posterior margin nearly straight, costal membrane a little wider than the radial area, the former strongly transversely veined, some of the veins furcate, the latter more sparingly and somewhat reticulately veined, first longitudinal vein emitted from radial vein close to its base, second longitudinal vein from upper end of cell, both strongly furcate before middle, two transverse lines formed of transverse veins on

apical area, the outermost nearly obliquely straight defining a series of narrow longitudinal marginal cellular areas, broadest near posterior angle, the inner transverse line less well defined; clavus with very obsolete scarcely discernible transverse veins in its upper area, strongly granulose beneath claval vein; wings broader than tegmina, with two transverse veins near apex and some of the longitudinal veins outwardly furcate.

2024. **Melicharia quadrata**, *Kirby* (Pœciloptera), *J. Linn. Soc., Zool.* xxiv, p. 154, t. vi, f. 8 (1891); *Melich.* (Ormenis) *Ann. Hofmus. Wien*, xvii, p. 84 (1902); *id. Hom. Faun. Ceylon*, p. 90 (1903).
Melicharia sinhalana, *Kirk. Entomologist*, xxxiii, p. 295 (1900).

Head (including face), thorax above, clypeus, and legs pale green; abdomen, apices of tibiæ, and the tarsi pale brownish-ochraceous; tegmina pale green, extreme costal, apical, and outer third of posterior margins testaceous; wings creamy-white; radial vein of tegmina strongly sinuate towards base, the venation to radial area being subobsolete on basal half; vertex of head with the central and lateral carinations very prominent and acute, the lateral angles distinct; clypeus with two central fasciæ formed of short oblique testaceous striæ; central ridge to face very prominent, but scarcely reaching from base to middle, lateral margins broadly reflexed; abdomen above with a short oblique black linear spot on each side of apex, anal appendage centrally linearly piceous.

Length excl. tegm. 7½; exp. tegm. 22 millim.

Hab. Assam; Margherita (*Doherty*). Trivandrum (*Coll. Dist.*). Ceylon; Pundaluoya, Kandy, Peradeniya (*Green*).

2025. **Melicharia lutescens**, *Walk.* (Pœciloptera) *List Hom. Suppl.* p. 117 (1858); *Stål* (Flata), *Öfv. Vet.-Ak. Förh.* 1862, p. 490; *Atkins. J. A. S. Beng.* lv, p. 72 (1886); *Melich.* (Paratella) *Ann. Hofmus. Wien*, xvii, p. 122 (1902).

Body and legs ochraceous; in fresh specimens the pronotum is

Fig. 226.—*Melicharia lutescens* *.

ornamented with two longitudinal central testaceous fasciæ;

* In the above figure the transverse veins in upper claval area appear far too prominent, they are practically obsolete.

tegmina pale, shining ochraceous; wings creamy-white; the mesonotum is somewhat profoundly channelled on each side of the central carination; the face is less acutely centrally carinate than in the preceding species (*M. quadrata*), but with the clypeus marked, though more faintly, as in that species; tegmina with the radial area strongly obliquely transversely veined, the radial vein not sinuate.

Length excl. tegm. 7; exp. tegm. 20 to 22 millim.

Hab. "North Hindostan" (*Brit. Mus.*). Bombay (*Coll. Dist.*).

2026. **Melicharia lactifera**, *Walk.* (Pœciloptera) *List Hom.* ii, p. 450 (1851); *Atkins.* (Flata) *J. A. S. Beng.* lv, p. 75 (1886); *Melich.* (Ormenis?) *Ann. Hofmus. Wien*, xvii, p. 98 (1902).
Ormenis conflicta, *Melich. Ann. Hofmus. Wien*, xvii, p. 83 (1902).
Ormenis pallida, *Melich. Ann. Hofmus. Wien*, xvii, p. 91, t. iv, f. 23 (1902).

Body and legs pale yellowish-white; tegmina milky-white, sometimes a little suffused with pale yellow, more particularly at the base and on extreme edge of posterior margin for about two-thirds from base; wings pale milky-white; face with a short distinct central carination barely reaching middle, the lateral margins broadly reflexed; clypeus with brownish obliquely transverse lines, sometimes very faintly visible; tegmina about one and a half times as long as broad, apical margin sharply truncate, apical angle very slightly rounded, the posterior angle almost rectangular.

Length excl. tegm. 5; exp. tegm. 21 millim.

Hab. "North India" (*Brit. Mus.*). Darjiling (*fide Melichar*). Ceylon; Kandy, Yatiyantota (*Green*).

Genus **HILAVRITA**, nov.

Type, *H. trimaculata*, Dist.

Distribution. Oriental Region.

Head (including eyes) a little narrower than pronotum; vertex broad, narrow, truncate in front, the lateral margins ampliately elevate; face a little longer than broad, centrally carinate for about half its length, the lateral margins somewhat broadly reflexed; clypeus strongly centrally carinate; pronotum coarsely rugosely granulate, anteriorly convexly produced between eyes, posteriorly subtruncate, medially sinuate; mesonotum raised, long, obsoletely tricarinate; tegmina about one and a half times as long as broad, costal and posterior margins subparallel, apical margin truncate with the apical and posterior angles rounded, costal membrane slightly wider than radial area, the first closely transversely veined, the latter obscurely, subreticulately veined, a transverse line formed of transverse veins before apical margin, not reaching inner margin, before which it is followed by a short

curved line beginning from near end of clavus, before the transverse line the disk is for some distance considerably reticulate; posterior tibiæ bispinose.

Differs from *Melicharia* principally by the shorter tegmina and by the subapical venation to same.

2027. **Hilavrita trimaculata**, sp. n.

Body and legs pale ochraceous, slightly here and there cretaceously tomentose; tegmina pale tawny-yellow, finely greyishly tomentose, with three large brown spots placed in somewhat transverse series before middle, the uppermost near end of radial area, the lowermost near end of clavus, and the central and larger

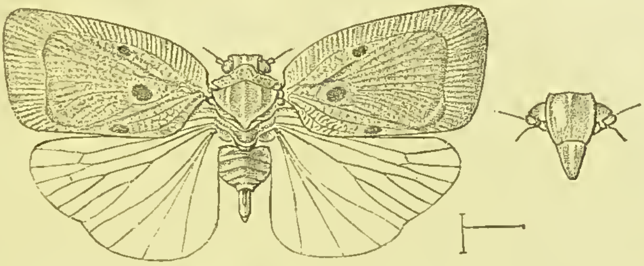

Fig. 227.—*Hilavrita trimaculata.*

spot a little nearer base than either of the other two, between the veins on costal and apical areas the colour is a little darker, and so are a number of speckles on basal disk and also the transverse subapical lines; wings very pale fuliginous with the veins darker; pronotum very coarsely rugosely granulate; radial vein to tegmina sinuate and a little prominent, claval suture considerably impressed and the clavus moderately obliquely raised and coarsely granulose.

Length excl. tegm. 5; exp. tegm. 9 millim.

Hab. Ceylon (*Green*, *Brit. Mus.*).

2028. **Hilavrita fatua**, *Melich.* (Ormenis) *Hom. Faun. Ceylon*, p. 90 (1903).

Head (including face), clypeus, and legs ochraceous; pronotum and mesonotum black, greyishly tomentose, their lateral areas ochraceous; abdomen ochraceous, more or less transversely blackish and greyishly tomentose; tegmina bluish-black, thickly greyishly tomentose, the margins and claval suture pale ochraceous, with faint indications of three darker black spots arranged as in preceding species (*H. trimaculata*); wings pale greyish-violaceous, the veins black; the tegmina beneath are much less greyishly tomentose and more uniformly bluish-black, the costal margin and claval suture being very prominently ochraceous.

Length excl. tegm. 5; exp. tegm. 16 millim.

Hab. Ceylon (*Green*, *Brit. Mus.*).

Genus NEPHESA.

Nephesa, *Amy. & Serv. Hém.* p. 527 (1843); *Stål, Berl. ent. Zeitschr.* vi, p. 313 (1862); *id. Hem. Afr.* iv, p. 237 (1866); *Atkins. J. A. S. Beng.* lv, p. 82 (1886); *Melich. Ann. Hofmus. Wien,* xvii, p. 101 (1902).

Type, *N. rosea*, Spin.

Distribution. Oriental and Malayan Regions. Ethiopian?

Head (including eyes) a little narrower than pronotum; vertex broad, narrow, anterior margin truncate, anteriorly a little widened on each side, the lateral margins ridged; face a little longer than its greatest breadth, on its anterior area centrally and sublaterally carinate, narrowed towards clypeus, which is slightly elevated above the plane of the face; pronotum anteriorly convexly produced, with a faint central ridge which is not quite percurrent; mesonotum long, tricarinate; tegmina more or less elongately subtriangular, the margins nearly straight, narrower than the wings, costal margin about as wide as the radial area, sometimes a little wider, the former closely transversely veined, the latter more or less reticulate, the whole surface finely transversely reticulate, two longitudinal veins emitted from upper end of basal cell beneath the radial vein, both strongly furcate at a short distance from base, and ramifying into a series of closely arranged longitudinal veins which are closely and furcately cellularly arranged on apical margin; wings with two transverse veins near apex.

2029. **Nephesa coromandelica,** *Spin.* (Pœciloptera) *Ann. Soc. Ent. Fr.* 1839, p. 440; *Atkins.* (Flata) *J. A. S. Beng.* lv, p. 74 (1886); *Melich.* (Nephesa) *Ann. Hofmus. Wien,* xvii, p. 106, t. iii, f. 9 (1902).

"♂, ♀. Head, dorsum of thorax, and tegmina grass-green, the rest (including wings) of a lighter green, veins deeper; second joint of the antennæ, exterior border of the external flap and of the entire discoidal space of the tegmina orange; third joint of the antennæ and its filament, spines on tibiæ and the tarsi black." (*Spinola.*)

Fig. 228.—*Nephesa coromandelica.*

"Length 20; exp. tegm. 35 millim." (*Melichar.*)

Hab. Coromandel Coast (*fide Spinola*).—Java (*fide Melichar*).

This is a rare species in collections and I have not as yet seen a specimen which I could absolutely identify with Spinola's

description. Melichar states that the type is in Signoret's collection, now contained in the Vienna Museum, so that the figure he gives (*supra*) may be accepted as finally settling the question.

Genus CRYPTOFLATA.

Cryptoflata, *Melich. Ann. Hofmus. Wien,* xvii, p. 19 (1902).

Type, *C. unipunctata*, Oliv., an Ethiopian species.

Distribution. Oriental and Ethiopian Regions.

Head (including eyes) narrower than pronotum; vertex short, broad, anteriorly a little angularly truncate, centrally and laterally ridged; face longer than broad, centrally ridged for about half its length from base, lateral margins strongly ridged, convexly narrowing to clypeus, anterior margin of vertex a little prominent above the facial base; pronotum much longer than vertex, centrally prominently ridged; mesonotum somewhat long and faintly tricarinate; posterior tibiæ bispinose; tegmina nearly twice as broad as long, costal margin arched at base, apical margin a little roundly truncate, apex subangulate, costal membrane about or nearly as wide as radial area, the first closely transversely veined, the latter reticulately veined, first and second longitudinal veins arising from a common origin at upper end of cell, the upper bifurcating near middle, the lower one bifurcating much nearer base, the whole area more or less transversely reticulate, the veins somewhat regularly bifurcate at apical margin, forming a series of longitudinal cellular areas, clavus strongly granulose; wings a little broader than tegmina.

2030. **Cryptoflata guttularis**, *Walk.* (Nephesa) *J. Linn. Soc., Zool.* i, p. 160 (1857); *id.* (Pœciloptera) *List Hom. Suppl.* p. 111 (1858); *Stål* (Flata), *Öfr. Vet.-Ak. Förh.* 1862, p. 490; *Atkins. J. A. S. Beng.* lv, p. 75 (1886); *Melich.* (Cryptoflata) *Ann. Hofmus. Wien,* p. 20, t. iii, f. 21 (1902).

Body and legs pale ochraceous, more or less cretaceously tomentose, especially on the abdomen above and the body beneath;

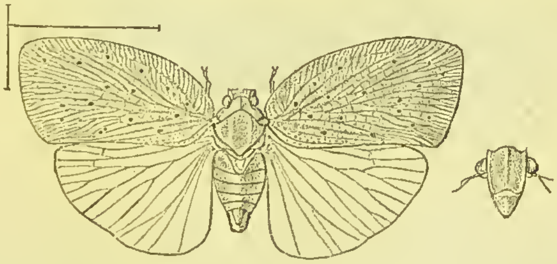

Fig. 229.—*Cryptoflata guttularis.*

tegmina opaque milky-white, sparsely ornamented with black spots, the costal and apical margins obsoletely pale ochraceous; wings milky-white; head with the vertex medially and centrally strongly

ridged, the angles of the lateral margins anteriorly prominent; eyes more or less suffused with piceous; pronotum smooth with a very strong central ridge; mesonotum moderately raised with its disk flattened; wings transversely veined near apex, some of the longitudinal veins bifurcate a little before outer margin.

Length excl. tegm. 10 to $10\frac{1}{2}$; exp. tegm. 37 to 38 millim.

Hab. Assam (*fide Melichar*). Burma; Karen Hills (*Doherty*).—Java. Borneo. North China.

Genus **NAKTA**, nov.

Type, *N. stoliczkana*, Dist.

Distribution. North-west India.

Head (including eyes) a little narrower than pronotum; vertex very narrow, the lateral margins laminately raised; face about as broad as long, centrally keeled throughout its entire length, its lateral margins laminately raised; clypeus long, transversely obliquely striate on each lateral area; pronotum at least twice as long as vertex, centrally carinate; mesonotum long, tricarinate: tegmina about half as long again as broad, the costal margin strongly arched, the apical margin truncate with its apical angle rounded, its posterior angle rectangular, costal membrane narrower than radial area, the first transversely veined but the veins scarcely reaching the costal edge, the latter faintly obliquely veined, costal vein prominent, first longitudinal vein emitted from radial vein at a short distance from base, second longitudinal vein from upper end of cell, both strongly furcate, the whole tegmen transversely reticulately veined, anterior area of clavus transversely veined, its posterior area coarsely granulose; wings narrower than tegmina.

2031. **Nakta stoliczkana**, sp. n.

Body and legs dark brownish-ochraceous; tegmina pale creamy-brown, a little pale testaceous on basal area and costal membrane, the costal vein and base of radial vein distinctly testaceous, a marginal series of minute fuscous spots commencing on costal

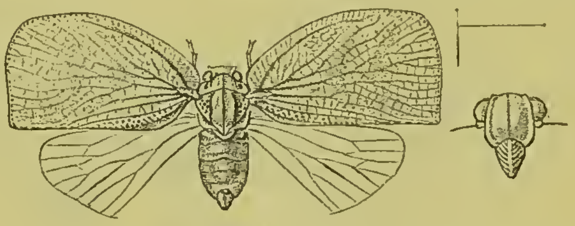

Fig. 230.—*Nakta stoliczkana.*

margin near apex and continued throughout the whole length of apical margin, about five small widely separated fuscous spots at upper edge of costal membrane, a few fuscous granulations beneath base of radial vein, the granulations to clavus also pale fuscous; wings creamy-white with the veins darker (the figure represents

the typical specimen, in which the anal areas of the wings are mutilated); clypeus very distinctly obliquely transversely striate on each lateral area.

Length excl. tegm. 6; exp. tegm. 20 millim.

Hab. Sind Valley (*Stoliczka*).

Genus **UNNATA**, nov.

Type, *U. intracta*, Walk.

Distribution. Brit. India.

Head (including eyes) narrower than pronotum; vertex short, broad, a little ampliate anteriorly, centrally carinate, the lateral margins very distinctly ridged; face almost as broad as long, a little widened towards clypeus, centrally and marginally ridged, strongly concave at base of clypeus; pronotum longer than vertex and distinctly medially carinate; mesonotum tricarinate; posterior tibiæ apparently without spines; tegmina nearly half as long again as broad, costal margin arched and convex on basal half, apical margin truncate, the apical angle slightly rounded, the posterior angle rectangular, costal membrane distinctly narrower than radial area, the first closely transversely veined, the latter obliquely reticulately veined, the whole tegmen transversely reticulately veined, first longitudinal vein emitted from radial vein near base, second from upper end of cell, both strongly furcate; wings about as wide as tegmina.

Allied to *Sephena*, Melich. (type *S. spargula*, Walk.), from which it may be at once separated by the relative breadths of the costal membrane and radial area. In *Sephena* these are equally broad, or the former very slightly broader than the latter.

2032. **Unnata intracta**, *Walk.* (Pœciloptera) *List Hom. Suppl.* p. 116 (1858); *Atkins.* (Flata) *J. A. S. Beng.* lv, p. 70 (1886); *Melich.* (Sephena ?) *Ann. Hofmus. Wien*, xvii, p. 129 (1902).

Body grass-green, abdomen paler; legs pale greenish-ochraceous, the anterior and intermediate tibiæ and tarsi pale testaceous;

Fig. 231.—*Unnata intracta.*

lateral margins of pronotum and mesonotum a little paler; tegmina dark grass-green, anterior margin of costal membrane rather broadly pale ochraceous, extreme edge of apical margin and of posterior margin beyond clavus pale ochraceous, apical half of posterior claval margin testaceous, claval vein paler and somewhat greyish; wings creamy-white with a very pale bluish tint.

Length excl. tegm. 6; exp. tegm. 19 millim.
Hab. Punjab (*Brit. Mus.*).

I only know this species by the unique type in the British Museum; it is probably, as is the case with most of these smaller species, of a much wider distribution than we can at present record.

Genus TEJASA, nov.

Type, *T. umbrata*, Dist.
Distribution. British India.

Head (including eyes) narrower than pronotum; vertex about half as long as broad, a little ampliate anteriorly, broadly centrally carinate, the lateral margins ridged; face a little longer than broad, centrally broadly carinate, the carination becoming evanescent posteriorly, lateral margins laminately ridged; clypeus elongate, posterior tibiæ obscurely spined; pronotum short, scarcely longer than vertex, its anterior margin only moderately convexly produced, centrally obscurely carinate; mesonotum only of moderate length, obscurely tricarinate; tegmina about half as long again as broad, costal margin arched at base and moderately rounded, apical margin truncate, costal membrane slightly wider than radial area, the first coarsely transversely veined, the latter with only a few oblique veins, a curved submarginal line formed of transverse veins commencing at end of costal membrane and continued before apical margin to about apex of clavus, defining a series of marginal narrow longitudinal cellular areas, discal area without transverse veins, radial vein prominent, two longitudinal veins from upper end of basal cell both strongly furcate, their ramifications forming a numerous series of other longitudinal furcate veins, clavus without transverse veins on its anterior area, the posterior area beneath claval vein strongly granulose; wings about as wide as tegmina.

2033. **Tejasa umbrata**, sp. n.

Body and legs umber-brown, margins of the abdominal segments distinctly much paler and more ochraceous; tegmina very pale umber-

Fig. 232.—*Tejasa umbrata.*

brown, the costal membrane and apical margin apparently darker, caused by the closer venation, claval granulations prominent; wings dull creamy-white, the veins pale umber-brown or ochra-

ceous; the lateral margins of face, clypeus, and legs paler and more ochraceous; mesonotum a little paler and more ochraceous, with two longitudinal discal umber-brown fasciæ placed between the central and lateral carinations; both apical and posterior angles of tegmina subangularly rounded, the disk smooth, clear and closely longitudinally veined; the anterior lateral margins of the vertex of head prominent and subangulate.

Length excl. tegm. 6 to $6\frac{1}{2}$; exp. tegm. 16 to 18 millim.

Hab. Nilgiri Hills (*Hampson*).

Genus **ORYXA.**

Oryxa, *Melich. Ann. Hofmus. Wien*, xvii, p. 50 (1902).

Type, *O. truncata*, Linn.

Distribution. Oriental and Malayan Regions.

This genus has been founded by Dr. Melichar for the reception of the species described by Linnæus as *Fulgora truncata.* There is, however, some doubt as to the identity of this species, and Melichar has selected some Bornean specimens as representing it. On the other hand, certain specimens from North Bengal are placed under the specific name of Linnæus in the British Museum, one of which I have figured. Either of these may be correctly identified, or, on the contrary, neither may represent it. As it is given as the type of the genus *Oryxa*, and there is so much difficulty as to its identification, I have only drawn attention to the genus, and have not attempted its diagnosis.

2034. **Oryxa truncata,** *Linn.* (Fulgora) *Syst. Nat.* i, p. 704. 8 (1767); *Fabr. Spec. Ins.* ii, p. 315. 11 (1781); *Westw.* (Pœciloptera) *Tr. Linn. Soc.* xviii, p. 151 (1841); *Atkins.* (Flata) *J. A. S. Beng.* lv, p. 74 (1886); *Melich.* (part.) (Oryxa) *Ann. Hofmus. Wien*, xvii, p. 50 (1902).

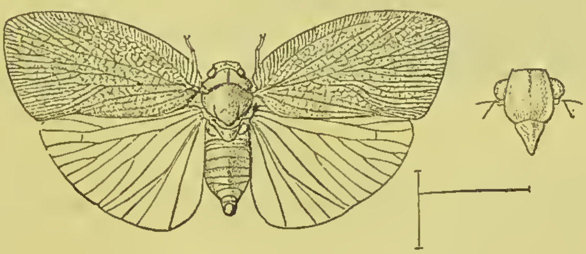

Fig. 233.—*Oryxa truncata*?

"Whitish-green; wings deflexed, compressed, posteriorly truncated; frons a little advanced, obtuse." (*Linn.*)

The specimen here figured stands in the British Museum under

the name of *truncata*, Linn., and is probably erroneously identified; were it to prove conspecific, it might well be placed in the genus *Cryptoflata*. This evidently proves that it is not the Linnean species as indentified by Dr. Melichar, and I thus briefly diagnose it:—Body and legs pale ochraceous; head and thorax above virescent; tegmina pale virescent, the costal margin narrowly pale ochraceous; tegmina creamy-white; structural characters as in the genus *Cryptoflata*.

Length excl. tegm. 9; exp. tegm. 25 millim.

Hab. North Bengal (*Brit. Mus.*).

Division *SELIZARIA*.

The principal character of this division is found in the elongate and narrow tegmina, always twice as long as broad; the tegmina also have their apical margins truncate, either straightly or a little sinuately, and their posterior angles sometimes broadly produced.

The *Selizaria* comprise small and dull-coloured species which are still little known, for they offer small attraction to the ordinary collector and are probably somewhat difficult to find. Both the British Museum and my own collection contain but few species and not many specimens.

Synopsis of Genera.

A. Tegmina with the posterior angles broadly produced .... SELIZA, p. 440.

B. Tegmina with the posterior angles not produced.

a. Face longer than broad .... GOMEDA, p. 443.

b. Face about as broad as long.

a. Tegmina with a single transverse apical submarginal line.

a'. Outer disk of tegmina transversely reticulately veined .... FARONA, p. 444.

b'. Outer disk of tegmina without transverse veins .... KETUMALA, p. 446.

b. Tegmina with two transverse apical submarginal lines .... ANAYA, p. 447.

Genus SELIZA.

Seliza, *Stål, Berl. ent. Zeitschr.* iv, p. 312 (1862); *Melich. Ann. Hofmus. Wien*, xvii, p. 136 (1902).

Type, *S. vidua*, Stål.

Distribution. Oriental and Malayan Regions, and recorded from the Island of Sokotra.

Head (including eyes) narrower than pronotum; vertex slightly prominent, sometimes medially ridged; face a little longer than

broad, centrally carinate, lateral margins broadly laterally ridged, clypeus elongate, laterally finely obliquely striate; pronotum barely as wide as head, centrally carinate; mesonotum tricarinate; tegmina about twice as broad as long, costal margin arched at base, more or less sinuate before apex, apical margin truncately sinuate, apical angle rounded, the posterior angle broadly roundly posteriorly produced, costal membrane about as broad or a little narrower than the radial area, the first closely transversely veined, the latter with a few very obscure transverse veins which are scarcely visible, tegmen more or less transversely veined on apical disk, sometimes also from end of radial area to subapical transverse line, sometimes for only half that distance, a subapical marginal line connected with costal vein defining a series of narrow longitudinal marginal cellular areas; wings about as broad as tegmina; posterior tibiæ with two spines.

2035. **Seliza vidua**, *Stål* (Pœciloptera), *Öfv. Vet.-Ak. Förh.* 1854, p. 248; *id.* (Seliza) *Berl. ent. Zeitschr.* vi, p. 312 (1862); *Atkins. J. A. S. Beng.* lv, p. 77 (1886); *Melich. Ann. Hofmus. Wien*, xvii, p. 137, t. vii, f. 11 (1902).

"Yellow-testaceous; vertex furnished at the base with an arcuate ridge, and towards the base between the eyes with a longitudinal ridge; tegmina subparallel, one and a half times longer than the breadth (in Melichar's figure they are twice as long as broad, and Stål had evidently misdescribed the character), beyond the middle both outwardly and inwardly sinuate, roundly truncated at the apex, adorned with a broad black fuscous patch, clavus inwardly tuberculate; head yellow-testaceous, at the base itself with a subarcuate transverse ridge, face somewhat longer than the breadth, reflexly margined, furnished with a small ridge towards the base; antennæ flavescent, third joint fuscous; pronotum yellow-testaceous, semicircularly subelevated behind the head; mesonotum yellow-testaceous, convex, almost four times longer than the pronotum; tegmina rounded outwardly from the base, then subparallel, sinuated outwardly and inwardly behind the middle, roundly truncate at the apex, testaceous-yellow; a large longitudinal patch, abrupt before the middle, black-fuscous; clavus longitudinally carinately elevated inwardly; body beneath and legs testaceous-yellow." (*Stål.*)

"Length 5; exp. tegm. 14 millim."

Hab. India (*fide Atkinson*).—Malacca.

I have not seen this species, which is evidently easily recognized by the large black discal patch to the tegmina.

2036. **Seliza ferruginea**, *Walk.* (Elidiptera) *List Hom.* ii, p. 333 (1851); *Stål* (Seliza), *Öfv. Vet.-Ak. Förh.* 1862, p. 490; *Atkins. J. A. S. Beng.* lv, p. 78 (1886); *Melich.* (part.) *Ann. Hofmus. Wien*, xvii, p. 138 (1902).

Head (including face), pronotum, body beneath, and legs ochraceous, apex of vertex and extreme base of face piceous;

mesonotum piceous, its lateral margins narrowly ochraceous: tegmina pale brownish ochraceous, claval and apical areas a little darker; wings pale fuliginous, the veins piceous; the vertex is without a prominent central carination, but the lateral and anterior margins are distinctly ridged, the face has the central carination fine and percurrent, and there is a short sublateral carinate-like fold on each side of basal area; the clypeus has a central pale longitudinal line and is finely obliquely striate on each side; the lateral carinations to the mesonotum are roundly transversely connected before the anterior margin; the transverse reticulations to the tegmina commence at the latitude of apex to radial area, but only occupy about half the space between that and the subapical transverse line; basal posterior half of clavus coarsely and a little darkly granulose.

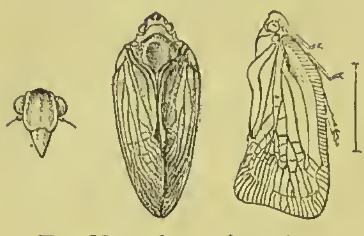

Fig. 234.—*Seliza ferruginea.*

Length 10 millim.

Hab. N.W. India (*Brit. Mus.*). Bombay (*Brit. Mus.*).

The type is here figured.

2037. **Seliza partita**, *Melich. Ann. Hofmus. Wien*, xvii, p. 138, t. vii, f. 18 (1902).

Closely resembling the preceding species (*S. ferruginea*, Walk.), and differing by the venation of the tegmina, in which the transverse reticulations extend from the latitude of the apex of radial area to the subapical transverse line; in the specimen before me the base of costal area, the central disk, an irregular costal spot before apex, and the posterior claval area are pale brownish ochraceous, while the remaining surface is more or less piceous or piceous-brown; wings fuliginous with the veins piceous.

Length excl. tegm. 7; exp. tegm. 22 millim.

Hab. N.W. India, Dehra Dun (*Mackinnon*); Darjiling (*fide Melichar*).

2038. **Seliza truncata**, *Walk.* (Flatoides) *List Hom.* ii, p. 419 (1851); *Stål* (Seliza), *Öfv. Vet.-Ak. Förh.* 1862, p. 490; *Atkins. J. A. S. Beng.* lv, p. 77 (1886); *Melich. Ann. Hofmus. Wien*, xvii, p. 140 (1902).

Body and legs uniformly ochraceous; mesonotum somewhat piceous; tegmina pale ochraceous, the veins brownish-ochraceous, transverse reticulations only extending about halfway between the latitude of the radial area and the submarginal apical line, and not reaching the posterior margin; claval granulations very fine, thick on basal half, much more sparingly distributed on apical half of its posterior area; wings pale fuliginous with the veins

piceous; face with the central carination strongly developed, the sublateral carinate-like folds obscure, a distinct small central projection at base; clypeus rather strongly laterally striate.

Fig. 235.—*Seliza truncata.*

Length excl. tegm. 5; exp. tegm. 15 millim.
Hab. N. India (*Brit. Mus.*).

2039. **Seliza? nigropunctata**, *Kirby, J. Linn. Soc., Zool.* xxiv, p. 152 (1891); *Melich. Ann. Hofmus. Wien*, xvii, p. 141 (1902); *id. Hom. Faun. Ceylon*, p. 91 (1903).
Ormenis fuscata, *Melich. Ann. Hofmus. Wien*, xvii, p. 73 (1902).

Head, legs, and body beneath brownish-ochraceous; pronotum and mesonotum piceous-brown; abdomen above brownish with the segmental margins paler; tegmina pale brownish-ochraceous with the venation darker, costal membrane arched, not sinuate, apical margin truncate, the posterior angle moderately produced, costal membrane nearly twice as broad as radial area, transverse reticulations on outer disk almost extending to subapical transverse line, clavus above claval vein with a few strong transverse veins, beneath the vein darkly granulose on basal half, on basal area there are a few scattered piceous granules; wings pale fuliginous with the veins piceous.

Length excl. tegm. 5; exp. tegm. 14 millim.
Hab. Ceylon; Putalam (*Green*).

This species differs from the generic characters of *Seliza*, at least as I regard them, by having the costal membrane of the tegmina nearly twice as broad as the radial area, and the costal margin convex, not sinuate.

Genus **GOMEDA**, nov.

Type, *G. abdominalis*, Kirby.
Distribution. Oriental Region.

Head (including eyes) a little narrower than pronotum; vertex somewhat longly subtriangularly produced in front of eyes, its lateral margins straight immediately before eyes and then obliquely narrowed to apex, which is slightly conically tuberculous; face longer than broad, obliquely narrowed at base, centrally carinate, the carination becoming evanescent posteriorly, the lateral margins from where they cease to be obliquely narrowed

somewhat strongly ridged; pronotum shorter than vertex, not prominently medially ridged; mesonotum obscurely tricarinate; tegmina narrow, a little more than twice as long as broad, the costal margin arched at base and somewhat strongly sinuate before apex, apical margin truncate, the apical and posterior angles rounded, posterior margin sinuate before its apex, costal membrane scarcely or very little wider than radial area, the first closely transversely veined, the latter with only a few transverse veins commencing near middle, costal and radial veins considerably curved, the radial vein prominent, two longitudinal veins emitted from upper end of basal cell both strongly furcate before middle, disk beyond middle and before apical area reticulately veined, thence the veins are longitudinal, forming narrow but elongate cellular marginal areas and traversed by a medial line formed of transverse veins; wings a little broader than tegmina.

2040. **Gomeda abdominalis**, *Kirby* (Phalænomorpha?), *J. Linn. Soc., Zool.* xxiv, p. 151, t. v, f. 16 (1891); *Melich.* (Ormenis) *Ann. Hofmus. Wien*, xvii, p. 75 (1902); *id. Hom. Faun. Ceylon*, p. 90 (1903).

Body and legs ochraceous; abdomen with an oblique fuscous lateral fascia on each side; tegmina very pale umber-brown, the venation (especially the bases of the radial and upper longitudinal veins) darker, a large greyish costal subapical spot and the apical marginal area between the veins also greyish, the transverse veins to the costal membrane are brownish but become ochraceous

Fig. 236.—*Gomeda abdominalis.*

beyond middle; wings pale creamy-white with the veins palely fuscous; head with the apex of vertex a little tuberculously prominent; lateral margins to face and a central fascia to clypeus a little paler; tegmina with the radial area a little gibbous near base, clavus above claval vein closely transversely ridged, its posterior area somewhat finely granulose.

Length excl. tegm. 6; exp. tegm. 17 to 18 millim.

Hab. Nilgiri Hills (*Hampson*). Ceylon (*Green*).

Genus FARONA.

Farona, *Melich. Ann. Hofmus. Wien*, xvii, p. 142 (1902).

Type, *F. fuscipennis*, Melich.

Distribution. Oriental Region.

Head (including eyes) considerably narrower than pronotum;

vertex about half as long as broad, the lateral margins ampliately elevated; face narrowed to clypeus, very obsoletely centrally carinate, but prominently so at base, where it appears as a short longitudinal elevation, lateral margins broadly reflexed; clypeus long; pronotum scarcely longer than vertex; mesonotum very obsoletely tricarinate; posterior tibiæ with two spines before the apex; tegmina about twice as long as broad, costal margin strongly arched at base, apical margin truncate, the apical and posterior angles a little rounded, posterior margin nearly straight, a little sinuate, costal membrane wider than radial area, the first closely transversely veined, the latter with a few transverse veins (some incomplete) beyond middle, two longitudinal veins emitted with radial vein at upper end of basal cell, the first two bifurcating before middle, the latter near its apex, a transverse subapical line formed of transverse veins, connected with costal vein and terminating near end of clavus, defining a series of narrow longitudinal marginal cellular areas, radial area and clavus a little obliquely raised, the outer disk before apical marginal area reticulately veined; wings about as long as tegmina.

2041. **Farona fuscipennis,** *Melich. Ann. Hofmus. Wien*, xvii, p. 142 (1902).

Body and legs pale brownish-ochraceous; abdomen with the segmental margins narrowly paler and more greyish; tegmina pale tawny-brown, costal membrane, apical marginal area, and

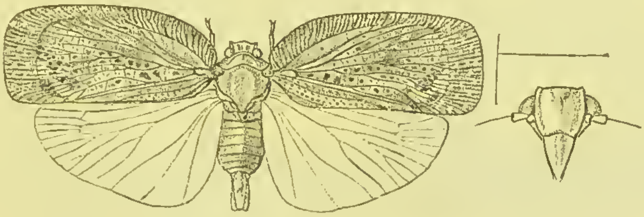

Fig. 237.—*Farona fuscipennis.*

apex of disk spotted with white, lower half of disk spotted with piceous, most prominently so near its base and apex; wings creamy-white with the veins a little darker; pronotum and mesonotum a little obscurely speckled with darker brown; tegmina with the discal white spots becoming enlarged and fused before the apical marginal area, the base of disk also obscurely greyish.

Length excl. tegm. 9; exp. tegm. 23 millim.

Hab. Assam; Margherita (*Doherty*). Burma; Karennee (*Fea*).

I am indebted to the kindness of Dr. Gestro, of Genoa, for allowing me an opportunity of examining Melichar's type of this genus and species.

Genus **KETUMALA**, nov.

Type, *K. bisecta*, Kirby.
Distribution. Ceylon.

Head (including eyes) narrower than pronotum ; vertex broad, narrow, anteriorly subtruncate, a little anteriorly laterally ampliate, the lateral margins strongly ridged; face as broad as long, with a short central carination not extending far from base, beyond middle obliquely narrowed to clypeus, its lateral margins moderately ridged ; pronotum strongly anteriorly produced ; mesonotum without visible carinations ; tegmina about twice as long as broad, costal margin arched at base, very slightly sinuate before apex, apical margin truncate, posterior angle not produced, costal membrane much wider than radial area, the first closely coarsely transversely veined, the latter sparsely transversely veined, a curved line proceeding from end of radial area to about apex of clavus, defining narrow, elongate, longitudinal, marginal, cellular areas, disk without transverse veins, claval suture profound, clavus thickly finely granulose ; wings at base about as broad as tegmina, veins stout and prominent ; posterior tibiæ apparently trispinose (imperfectly seen in type).

2042. **Ketumala bisecta**, *Kirby* (Seliza), *J. Linn. Soc., Zool.* xxiv, p. 152, t. v, f. 5 (1891); *Melich. Ann. Hofmus. Wien*, xvii, p. 141 (1902) ; *id. Hom. Faun. Ceylon*, p. 90 (1903).

Head, face, clypeus, body beneath, and legs ochraceous ; base of vertex and extreme base of face black ; pronotum black with its lateral areas chocolate-brown, its lateral margins ochraceous ; mesonotum chocolate-brown with a broad central longitudinal black fascia, the extreme lateral margins ochraceous ; tegmina with the disk purplish-brown, the costal membrane, radial area, apical margin, and clavus pale fuscous-brown, the claval suture greyish-white, the granulations to clavus piceous; wings pale fuliginous, the veins piceous ; the lateral margins of the vertex are ridged and pale ochraceous ; on the apical margin of the tegmina the ground-colour between the prominent veins is paler fuscous, the sutural margin wide and prominent.

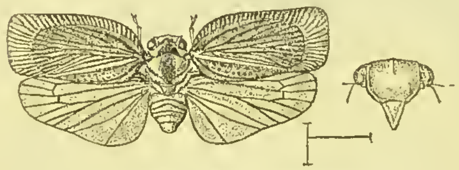

Fig. 238.—*Ketumala bisecta.*

Length excl. tegm. 5 ; exp. tegm. 15 millim.

Hab. Ceylon ; Patalam (*Green*).

I only know this species by the unique type in the British Museum, and have not seen another specimen.

Genus ANAYA, nov.

Type, *A. mesochlora*, Walk.

Distribution. Oriental Region.

Head (including eyes) a little narrower than pronotum; vertex short, broad, anteriorly subtruncate, centrally ridged and laterally carinate; face about as broad as long, centrally promiuently acutely ridged, laterally broadly laminately ridged; pronotum about as long as vertex, medially ridged; mesonotum faintly tricarinate; tegmina about twice as broad as long, a little apically ampliate, costal margin arched at base, thence somewhat obliquely straight, apical margin truncate, the apical and posterior angles subangularly rounded, costal membrane about as wide or slightly wider than radial area, the first closely transversely veined, the latter with only a few transverse veins near apex, first aud second longitudinal veins emitted at upper eud of basal cell, both forked before middle, a transverse line formed of transverse veins connected with costal vein and continued to about apex of clavus, defining an apical marginal series of longitudinal cellular areas, before this line there is another discal, oblique, and more ill-defined line, upper claval area smooth, beneath claval vein coarsely granulose; wings about as wide as tegmina.

2043. **Anaya mesochlora,** *Walk.* (Flatoides) *List Hom.* ii, p. 411 (1851); *Stål* (Ormenis), *Öfv. Vet.-Ak. Förh.* 1862, p. 490; *Melich. Ann. Hofmus. Wien*, xvii, p. 99 (1902).
Flatoides pustulatus, *Walk. Ins. Saund., Hom.* p. 48 (1858).

Body and legs ochraceous, vertex and face piceous; anterior and intermediate legs streaked with piceous; tegmina fuscous-brown varying in depth of tint, in some specimens piceous on anterior

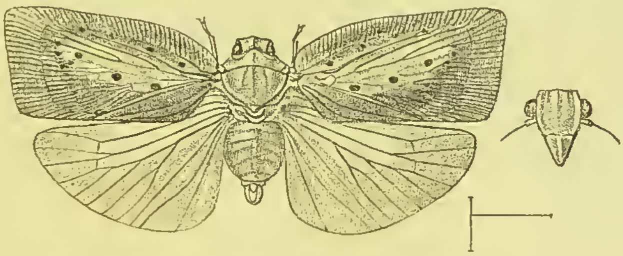

Fig. 239.—*Anaya mesochlora.*

and posterior basal areas, narrow disk from base to beyond middle pale bluish-green containing about nine piceous spots, usually three at base and three each in two oblique series; wings pale fuliginous with the veins fuscous; lateral areas of the pronotum somewhat piceous; abdomen tinted with pale green, and extreme bases of wings also of that colour.

Length excl. tegm. $6\frac{1}{2}$; exp. tegm. 19 millim.

Hab. Andaman Islands (*De Roepstorff*, *Coll. Dist.*). Tenasserim; Myitta (*Doherty*).

Walker described this species as from an unknown locality; I have received it from the Andaman Islands and Tenasserim.

2044. **Anaya spectra**, sp. n.

Body and legs very pale ochraceous; eyes piceous; tegmina pale opaque creamy-white, the costal and apical margins slightly tinged with brownish, inner claval margin narrowly piceous, an oblique pale brownish line before the subapical transverse line, disk with some twenty or more small piceous spots, of which the largest are three in oblique series a little beyond base, the smallest are outermost and extend into the subapical portion of the costal membrane, above clavus is a somewhat large pale brownish spot; wings creamy-white.

Length excl. tegm. 6; exp. tegm. $17\frac{1}{2}$ millim.

Hab. Andaman Islands (*De Roepstorff*, *Coll. Dist.*).

2045. Gen.? **ambrosa**, *Melich.* (Ormenis) *Ann. Hofmus. Wien*, xvii, p. 74 (1902).

"Yellowish-brown, body brown; face broader than long with a distinct middle keel; pronotum with two very fine punctures near the anterior margin; mesonotum arched, tricarinate, middle keel in front and lateral keels behind more strongly marked, apex of mesonotum callous and piceous-black; tegmina more than twice as long as broad, a little broader posteriorly, where they are truncate with rounded-off angles; radial area at base broader than costal membrane; the latter gradually widened posteriorly, traversed by thick transverse veins and set with numerous scattered granules, two submarginal lines wider apart than is the outer one from apical margin which is also parallel to it, the inner line undulate, both connected with the costal vein; the tegmina are yellowish-brown, rather darker at base, the apical margin narrowly bordered with brown; wings brownish-yellow; abdomen and legs brown." (*Melichar.*)

"Length, ♂, 11 millim."

Hab. "India orientalis" (*Copenhagen Mus.*).

2046. Gen.? **albicosta**, *Melich.* (Ormenis) *Ann. Hofmus. Wien*, xvii, p. 77 (1902).

"Yellowish-brown; face and legs somewhat paler; tegmina yellowish-brown, with a broad white costal margin, which at the base occupies half of the costal membrane and at middle the whole breadth of costal membrane, towards the costal margin the tegmina are generally darker, clavus set with yellow granules almost

to the apex; wings smoky, paler at the base; face towards the middle keel with two more very shallow folds which simulate keels, but they are shortened above and below and are only perceptible by a side light." (*Melichar.*)

"Length, ♂, 9½ to 10 millim."

Hab. Nicobar Islands (*fide Melichar*).

2047. Gen? **proxima**, *Melich.* (Ormenis) *Ann. Hofmus. Wien*, xvii, p. 83 (1902); *id. Hom. Faun. Ceylon*, p. 90 (1903).

"Body yellow; tegmina pale green; face longer than broad, narrowed towards clypeus, keeled in middle, yellow; pronotum almost straightly truncate in front, without keels; mesonotum slightly arched, without distinct keels; tegmina more than twice as long as broad, narrow, posteriorly truncately straight, angles slightly rounded off, sutural part of apical margin slightly angulate at apex of clavus, subapical line longly remote from apical margin, the space between them more than the breadth of costal membrane; tegmina pale green, apical and sutural margins brownish; abdomen and legs yellowish, apices of spines of posterior tibiæ brown." (*Melichar.*)

"Length 9 millim."

Hab. Ceylon (*fide Melichar*).

Division *FLATOIDESARIA.*

The principal character for the separation of this division is found in the great breadth of the costal membrane to the tegmina; this is three or four times broader (sometimes more) than the radial area; the tegmina and wings when at rest are also held in a more or less horizontal, or only slightly vertical, position. This is one of the best-marked and most easily recognized divisions of the *Flatinæ*, and is found in all the warmer regions of the world. We probably know at present only a moiety of those found in British India, and my collection now contains an undescribed species from Ceylon and another from Tenasserim, both of which are in too imperfect a condition for proper diagnosis. A thorough search for these insects by one who had acquired a knowledge of their habits would probably result in the present enumeration being at least doubled; and this remark applies to several other divisions of this subfamily.

Synopsis of Genera.

A. Vertex of head distinctly longer than broad.
- a. Tegmina little more than twice as long as broad; about as broad as wings .... ATRACIS, p. 450.

B. Vertex of head as long as, or slightly longer, than broad.
- a. Tegmina nearly three times as long as broad, distinctly narrower than wings .... GAJA, p. 460.

C. Vertex of head broader than long .... BOCHARA, p. 463.

The genus *Flatoides* is enumerated, but not included in this synopsis for the reasons stated at p. 459.

Genus ATRACIS.

Atracis, *Stål, Hem. Afr.* iv, p. 250 (1866); *Atkins. J. A. S. Beng.* lv, p. 81 (1886).
Flatoides, subgen. Atracis, *Melich. Ann. Hofmus. Wien*, xvii, p. 174 (1902).

Type, *A. pyralis*, Guér., from the Malay Archipelago.

Distribution. Oriental and Malayan Regions. Probably more widely distributed.

Head (including eyes) narrower than pronotum; vertex longer than broad, sometimes distinctly foveate in front of eyes, or else only moderately excavate between the ridged lateral margins; face considerably longer than broad, the anterior angles of the lateral margins prominent or subprominent, smooth or subobsoletely medially carinate; pronotum shorter or slightly shorter than vertex of head, rounded or subtruncately rounded anteriorly; tegmina about twice, or very little more than twice, as long as broad, the costal membrane three or four times as broad as radial area, two longitudinal veins from upper end of cell both strongly forked a little beyond base, a number of transverse veins before apical area, on which are transverse lines defining series of longitudinal cellular areas, costal membrane more or less waved and uneven; posterior tibiæ with one spine.

2048. **Atracis indica**, *Walk.* (Elidiptera) *List Hom.* ii, p. 330 (1851); *Stål* (Flatoides), *Öfv. Vet.-Ak. Förh.* 1862, p. 489; *Atkins. J. A. S. Beng.* lv, p. 79 (1886); *Melich.* (Atracis) *Ann. Hofmus. Wien*, xvii, p. 188, nec fig. (1902); *id. Hom. Faun. Ceylon*, p. 91 (1903).

Body and legs pale dull ochraceous; tegmina ochraceous finely mottled with fuscous-brown, each tegmen with a slightly curved transverse fuscous-brown fascia just beyond latitude of posterior angle of mesonotum; vertex of head longer than broad, concave beyond latitude of eyes; face much longer than broad, narrowed anteriorly, the basal margin rounded, with the anterior lateral angles a little prominent, anterior margin and a spot on each side of it fuscous-brown, a narrow central brownish line and the posterior disk finely speckled with the same colour; clypeus with a longitudinal series of oblique brown striate lines on each side; posterior tibiæ with a single spine; pronotum truncately rounded between eyes, with a prominent central tubercle behind anterior margin, and very finely and obscurely speckled with brown; mesonotum (somewhat crushed in type) with some very fine brownish granules on disk; tegmina

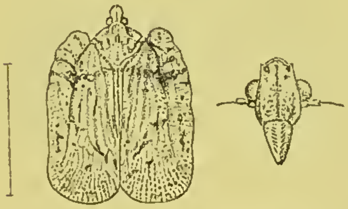

Fig. 240. –*Atracis indica.*

with the costal membrane very broad, four or five times wider than the radial area, the margin more or less erosed and sinuate, with four imperfectly defined brownish transverse fasciæ on its basal area, the last parallel with the discal transverse fascia, beyond this the costal membrane is sparingly irregularly brownly spotted, the tegmina are internally suffused with pale brown and the outer disk before costal membrane irregularly sparingly spotted with the same colour, the apical area possesses a number of fine pale brown longitudinal spots.

Length incl. tegm. 15 millim.

Hab. "French rocks near Madras" (*Brit. Mus.*).

The above figure represents the type; the figure given by Melichar may represent another species, as the head is distinctly shown as longer and broader than in *A. indica.*

2049. **Atracis munita,** *Melich. Ann. Hofmus. Wien,* xvii, p. 189 (1902); *id. Hom. Faun. Ceylon,* p. 92 (1903).

Vertex of head, pronotum, and mesonotum dull virescent, body beneath and legs ochraceous; mesonotum with a sublateral black fascia on each side; tegmina greenish, more ochraceous on costal membrane, veins darker, and the whole surface more or less cretaceously tomentose; a piceous slightly oblique transverse fascia a little beyond the area of the posterior angle of mesonotum and terminating at inner margin of costal membrane; vertex of head a little longer, but resembling in structure that of *A. indica*; face about twice as long as broad, the lateral margins before eyes sinuately narrowed to anterior margin, which is rounded with the anterior lateral angles prominent, from eyes to apex a little rounded and widened, two large black spots at anterior margin; posterior tibiæ with a single spine; pronotum shorter than vertex and anteriorly truncate; mesonotum with a small tubercle before anterior margin, followed by a small transverse carination on each side; tegmina in general structure as in *A. indica*, but the transverse veins on each side of the median suture much more raised and prominent, spots on apical area larger, and also distinguished by the cretaceous tomentosity.

Length incl. tegm. 18 millim.

Hab. Ceylon; Kandy (*Green*, *Brit. Mus.*).

I identify a Ceylonese specimen described above as Melichar's species. Apart from the different colour and appearance of the tegmina, it is to be separated from *A. indica* by the slightly longer vertex and face.

2050. **Atracis emersoniana,** *Walk.* (Elidiptera) *List Hom. Suppl.* p. 73 (1858); *Melich.* (part.) (Flatoides) *Ann. Hofmus. Wien,* xvii, p. 224 (1902).

Atracis latifasciata, *Melich. Ann. Hofmus. Wien,* xvii, p. 187, t. ix, f. 14 (1902); *id. Hom. Faun. Ceylon,* p. 91 (1903).

Pœciloptera tennentina, *Emerson Tennent, Nat. Hist. Ceylon,* p. 433, fig. (1861) (sine descript.).

"Vertex twice as long as broad posteriorly, equally broad and obtusely angulated in front, sides of head produced in acute angles, sprinkled with brown; face more than twice as long as broad, the margins curved outwards before clypeus, disk finely wrinkled, at tip spotted with black; pronotum truncate in front, lateral margins obtusely angulate, on each side a broad dark stripe extending to the axillary angles; mesonotum with indistinct dark spots; tegmina longer than broad, greenish or dirty-white, with two dark transverse lines traversing the whole surface, between which the corium is coloured with yellowish-brown forming a broad transverse band, the anterior margin straight, the posterior

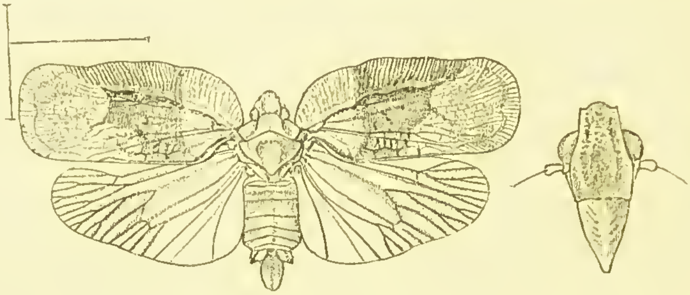

Fig. 241.—*Atracis emersoniana.*

margin zigzag, a dark curved streak in clavus connecting outer vein with claval suture and a marginal spot on costal margin before the middle zone; green granules at bases of costal membrane and clavus, indistinct granules in corium; wings milky-white; abdomen and legs yellowish-brown." (*Melichar.*)

"Length 18 millim."

Hab. Ceylon; Kandy (*fide Melichar*).

Melichar has placed as a synonym of this species the *Pœciloptera tennentina*, Walk., which, however, he had previously described and figured as a distinct species in the genus *Scarpanta* (Ann. Hofmus. Wien, xvi. p. 241, 1901): cf. *Danavara tennentina* (*ante*, p. 404, f. 208). He has also redescribed and figured *A. emersoniana* under the name of *A. latifasciata*, and to prevent confusion I have copied his description and given a figure of Walker's type.

2051. **Atracis nietneri**, *Stål* (Phalænomorpha), *Öfv. Vet.-Ak. Förh.* 1858, p. 452; *Melich.* (Atracis) *Ann. Hofmus. Wien*, xvii, p. 192, t. ix, f. 13 (1902); *id. Hom. Faun. Ceylon*, p. 92 (1903).

Body and legs ochraceous or brownish-ochraceous; tegmina varying in hue from pale greyish-green to brownish-ochraceous, with a distinct narrow fuscous-brown fascia, commencing at base, running along about half the length of claval suture, and then obliquely upwardly and angularly extending to apex, where it is broadened, it is also dislocated near middle where it is directed towards posterior margin, the radial vein is also more or less suffused with the same colour, a few irregular oblique fuscous-brown spots

is costal membrane, and more or less spotted with the same colour on apical area, sometimes with a few small fuscous spots on disk wings pale fuliginous, the veins very distinctly darker; face with two or three black spots at base, from about middle ampliated on each side to clypeus; pronotum with two small discal callosities and with an oblique black marginal line behind eyes; mesonotum with two discal black fasciæ commencing on posterior margin, extending upward to a little beyond middle, then abruptly turned inwardly, and again narrowly closely longitudinally continued towards anterior margin; costal membrane more than four times as broad as radial area.

Length excl. tegm. 10 to 12; exp. tegm. 28 to 32 millim.

Hab. Ceylon; Kandy, Pundaluoya (*Green*).

Somewhat closely allied to the preceding species, *A. emersoniana.*

2052. **Atracis consanguinea**, sp. n.
Atracis nietneri, *Stål*, var. ?

Closely allied to the two preceding species, but separable by the different markings of the tegmina and face; tegmina without the percurrent fascia as in *A. nietneri*; face with a somewhat large subbasal black spot; tegmina varying from pale virescent to pale

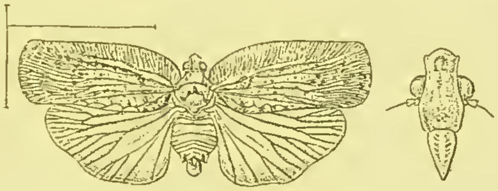

Fig. 242.—*Atracis consanguinea.*

testaceous more or less suffused with cretaceous, the radial area obliquely prominent and paler in hue; clypeus with two longitudinal series of transverse brown striæ.

Length excl. tegm. 12; exp. tegm. 31 to 32 millim.

Hab. Ceylon (*Green, Brit. Mus.*).

The three species (?) *A. emersoniana*, Walk., *A. nietneri*, Stål, and the above, have very much in common as regards structure, but considerable diversity in the tegminal markings. The three must be either regarded as distinct species or as varietal forms of one species, and without further knowledge they are too dissimilar for me to arrange them according to the latter method.

2053. **Atracis erosipennis**, *Stål* (Phalænomorpha), *Öfv. Vet.-Ak. Förh.* 1858, p. 451; *Melich.* (Atracis) *Ann. Hofmus. Wien*, xvii, p. 190 (1902); *id. Hom. Faun. Ceylon*, p. 92 (1903).

"Sordid white, cretaceously mouldy, above with tegmina palely sordidly virescent; three basal spots to face (lateral ones minute), two streaks to the genæ, the one before the eyes elongate, vitti-

form, a transverse arcuated line, and scattered punctures to vertex blackish-brown; pronotum moderately, minutely, behind eyes on each side densely, mesonotum moderately, tegulæ densely and confluently, and tegminal veins here and there speckled with fuscous, costal margin erosed. Head longly produced before eyes, about half as long again as broad, parallel, apex rounded, margins moderately elevated, with a medial longitudinal linear sulcation; face from base to nearly beyond middle distinctly a little ampliated, afterwards subparallel, apex slightly narrowed, base convex, with an obsolete longitudinal carination, scarcely twice longer than the medial breadth; pronotum foliaceous on each side, acutely angularly dilated; mesonotum with the disk smooth, on each side at tegulæ densely sprinkled with fuscous; tegmina ample, towards apex somewhat narrowed, apex broadly rounded, costal margin slightly trisinuate; wings white; abdomen beneath here and there infuscated; posterior tibiæ with a spine beyond middle." (*Stål.*)

"Length 12; exp. tegm. 35 millim."

Hab. Ceylon.

I have been unable to connect this description with certainty to any Ceylonese specimens which have passed through my hands.

2054. **Atracis moelleri**, sp. n.

Body pale emerald-green, legs ochraceous; pronotum with a central darker longitudinal fascia; mesonotum with an irregular oblique piceous fascia on each side; abdominal segmental margins

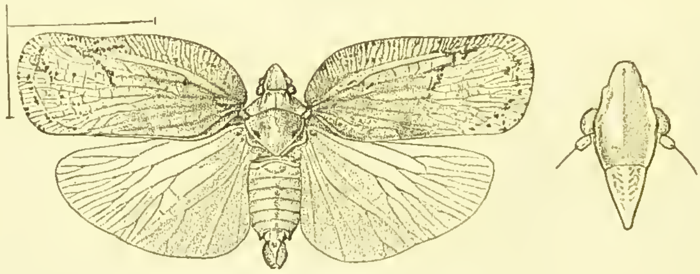

Fig. 243.—*Atracis moelleri.*

brighter and more intense emerald-green; tegmina very pale emerald-green, much cretaceously tomentose, the radial area especially so and prominent, extreme costal edge ochraceous, some obscure fuscous irregular spots on posterior costal and apical marginal areas, and a spot of the same colour beneath and a little before apex of radial area; wings cretaceous-white, with the veins green; vertex of head longer than broad, obliquely narrowed towards apex, which is truncate and a little paler in hue; face long, obliquely narrowed in front of eyes, transversely impressed

before clypeus, which is laterally obliquely brownly striate; posterior tibiæ with one spine; pronotum shorter than vertex, anteriorly truncate, lateral and anterior margins a little ridged; costal membrane about three times the breadth of radial area.

Length excl. tegm. 13; exp. tegm. 33 millim.

Hab. Darjiling (*Möller*, *Coll. Dist.*).

2055. **Atracis perplexa**, *Walk.* (Elidiptera) *Ins. Saund., Hom.* p. 39 (1858).

Body and legs dull ochraceous; tegmina dull pale ochraceous, extreme costal edge and a patch at base and on central disk bright dark green, a broad transverse line near base extending from radial vein to near claval suture, and a waved longitudinal narrow fascia commencing at base, running through upper basal half of clavus

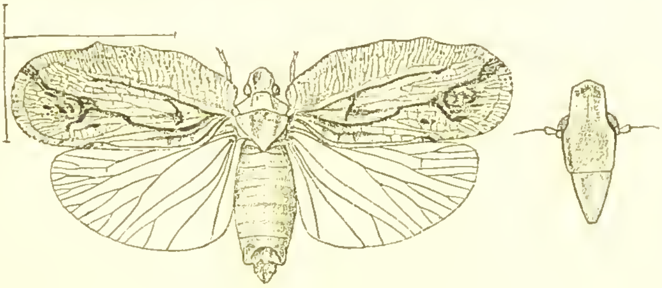

Fig. 244.—*Atracis perplexa.*

and extending to near apex, before which it broadly bifurcates, castaneous-brown; wings dull creamy-white, with the veins brown; vertex of head longer than broad and somewhat deeply foveate; face very long, from the region of the eyes narrowed to base, which is rounded, the posterior broader portion slightly obliquely narrowed to clypeus, which is elongate; posterior tibiæ with one spine; pronotum shorter than vertex, the margins very strongly ridged, the anterior margin roundly truncate; mesonotum depressed, with two callosities near anterior margin and one on each side of lateral margins; costal membrane at least four times as broad as radial area.

Length excl. tegm. 16; exp. tegm. 38 millim.

Hab. Ceylon (*Brit. Mus.*).

2056. **Atracis himalayana**, sp. n.

Body and legs brownish-ochraceous, head and pronotum strongly tinged with dull ochraceous-green; tegmina dull ochraceous-green, with a very strongly waved narrow longitudinal fascia extending from base of clavus through about three-fourths the length of tegmen, a large irregular subapical costal patch and some apical submarginal spots or short lines castaneous-brown, extreme

costal edge dull ochraceous; wings very pale fuliginous; vertex of head elongate, longer than broad, a little narrowed anteriorly, ridged between eyes, the ridge terminating in a callosity on each side, a slight transverse depression immediately before anterior

Fig. 245.—*Atracis himalayana.*

margin; face longer than broad, strongly obliquely narrowed from in front of eyes, behind which the lateral margins are strongly reflexed, deeply transversely impressed before clypeus, the posterior disk finely mottled with castaneous, the anterior disk with a central line and the tip piceous; clypeus with two broad central castaneous fasciæ; posterior tibiæ with a single spine; pronotum much shorter than vertex, the anterior margin truncately rounded and centrally a little sinuate; mesonotum finely mottled with darker ochraceous and with some irregular black spots, of which the most prominent are at base and near each lateral angle; costal membrane about three times as wide as radial area.

Length excl. tegm. 12; exp. tegm. 33 millim.

Hab. "Himalayas" (*Coll. Dist.*).

2057. Atracis cretacea, sp. n.

Body and legs pale ochraceous, more or less sparsely cretaceously tomentose; pronotum with a curved longitudinal black line behind each eye; mesonotum with two angulated black carinate fasciæ on anterior disk; tegmina cretaceous, tomentose, the clavus somewhat pale virescent, a black irregularly-waved narrow longitudinal fascia commencing near base, traversing claval suture for half its length, and upwardly continued to apex, some irregular black spots near base between radial vein and clavus, a black spot at apex of clavus, and some minute black spots on posterior edge of clavus,

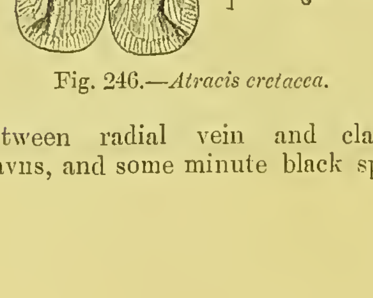

Fig. 246.—*Atracis cretacea.*

extreme costal edge ochraceous ; vertex of head much longer than broad, its apex rounded and the anterior lateral angles acutely produced, a minute black spot at inner margin of each eye ; face very long, anteriorly sinuately narrowed in front of eyes, the lateral margins acutely prominent before tip, which is rounded and marked with minute piceous spots or dots, transversely impressed before clypeus ; posterior tibiæ with a single spine ; pronotum shorter than vertex and anteriorly truncate ; mesonotum (excluding the black carinate fasciæ) smooth ; costal membrane about four times the breadth of radial area.

Length incl. tegm. 22 millim.

Hab. Malabar (*Coll. Dist.*).

2058. **Atracis fimbria**, *Walk.* (Elidiptera) *List Hom.* ii, p. 331 (1851) ; *Atkins.* (Flatoides) *J. A. S. Beng.* lv, p. 80 (1886) ; *Melich.* (Atracis) *Ann. Hofmus. Wien*, xvii, p. 199 (1902).

Body and legs ochraceous ; tegmina dull ochraceous, the costal membrane only minutely spotted with brown on the transverse veins, beneath the radial area more distinctly mottled or spotted with the same colour ; wings sordid creamy-white, the venation darker ; vertex longer than broad, with a distinct central carination, narrowed anteriorly, the margins ridged and with a transverse ridge near base ; face longer than broad, narrowed from eyes to base, which is a little thickened, lateral margins moderately ridged ; posterior tibiæ with a single spine ; pronotum a little shorter than

Fig. 247.—*Atracis fimbria.*

vertex, medially carinate and laterally ridged, the lateral areas foveate ; mesonotum with a black sublateral fascia on each side ; tegmina with the costal membrane about four times wider than the radial area, the radial vein very prominent and sinuate, the edge of the costal membrane somewhat uneven but not erosed, the clavus at posterior base fuscously granulose.

Length excl. tegm. 11 ; exp. tegm. 27 millim.

Hab. Sylhet (*Brit. Mus.*).

I only know this species by the unique type, which is here figured.

2059. **Atracis insularis**, sp. n.

Body and legs pale ochraceous; pronotum with two somewhat large black discal spots; mesonotum with two black spots on each lateral area; tegmina greyish with a slight stramineous tint sparsely mottled or spotted with fuscous-brown, the largest and most distinct spots being placed on apical half of costal membrane and on the apical marginal area, the basal disk practically immaculate, clavus principally spotted at base and apex; wings milky-white, with the veins yellowish; vertex of head much longer than broad, smooth, with a subobsolete medial carination, narrowed to apex, which is subtruncate, distinctly tranversely ridged between eyes; face smooth, without a medial ridge, strongly narrowed anteriorly, a small black spot on each side before anterior margin, lateral margins somewhat strongly reflexed, strongly transversely impressed before clypeus, which has a paler central longitudinal fascia; tegmina about twice as long as broad, costal membrane about three times as broad as radial area, costal margin obtusely angulate before middle; posterior tibiæ with one spine.

Length excl. tegm. 12; exp. tegm. 26 millim.

Hab. Andaman Islands (*de Roepstorff*, *Coll. Dist.*).

2060. **Atracis conspurcata**, *Melich. Ann. Hofmus. Wien*, xvii, p. 191, t. ix, f. 9 (1902); *id. Hom. Faun. Ceylon*, p. 92 (1903).

"Specimen described badly damaged and crushed so as to prevent the head and thorax being properly described. Vertex of head more than twice as long as broad, flat, spotted with brown at tip, the lateral angles acutely angularly produced; face, pronotum, and mesonotum yellowish-brown, two stripes on pronotum and large spots at sides of mesonotum black; tegmina more than twice as long as broad, costal membrane five or six times as broad as radial area and traversed by close here and there forked transverse veins, longitudinal veins slender, radial vein a little raised and comb-like, numerous transverse veins and a subapical line, outer vein in clavus curved and waved, the tegmina are pale yellowish-white, semi-transparent, with numerous brown spots and dots, which form here and there connected markings; wings white with yellowish veins; abdomen and legs yellowish-brown." (*Melichar*).

"Length 16; exp. tegm. 30 millim."

Hab. Ceylon (*fide Melichar*).

I have not seen this species.

2061. **Atracis insurgens**, *Melich. Ann. Hofmus. Wien*, xvii, p. 181, t. vi, f. 3 (1902).

"Head formed as in *A. consocia*, Melich. (a Sumatran species), also similar in form of tegmina, but the terminal cellular areas about three or four times as long as broad; face thickly sprinkled with brown, middle keel extending to middle of disk, sharply

defined; clypeus yellow, with brown transverse stripes; tegmina above deep yellowish-green, clavus brown, and from its apex extends posteriorly a tree-like branching brown narrow fascia terminating in a longish spot, on outer margin beyond middle a brown line which is convex internally; wings dirty-white with brown veins; abdomen and legs brown." (*Melichar.*)

"Length, ♀, 12 millim."

Hab. Assam; Khasia (*fide Melichar*).

I have not seen this species.

Genus **FLATOIDES.**

Flatoides, *Guér. Règn. Anim., Ins.* p. 362 (1838); *Stål, Hem. Afr.* iv, p. 248 (1866); *Atkins.* (part.) *J. A. S. Beng.* lv, p. 79 (1886): *Melich.* (part.) *Ann. Hofmus. Wien*, xvii, p. 173 (1902); *id.* (subgenus) *tom. cit.* p. 174 (1902).

Type, *F. tortrix*, Guér., from Cuba.

Distribution. Apparently found throughout the principal zoo-geographical regions.

Dr. Melichar gives as the principal divisional character of this genus from *Atracis*, the possession by the posterior tibiæ of two spines, while in *Atracis* they have only one. I have seen no specimens from British India thus equipped, but Melichar has described a species from Sikhim as a *Flatoides*, the diagnosis of which I reproduce.

As I have neither seen the type of this genus nor the species which is described as representing it in British India, I have been unable to include it in the synopsis of genera.

2062. **Flatoides servus**, *Melich. Ann. Hofmus. Wien*, xvii, p. 221 (1902).

"Vertex a little broader than long, in front almost straightly truncate, flat above, with a middle keel which splits in front and forms a small triangular impression; face distinctly longer than broad, at the upper frontal margin as broad as clypeus, broadest in middle, laterally angulated outwards, the disk directed horizontally downwards, smooth, with a distinct middle keel, anterior lateral angles short, almost rounded, with several brown spots; antennæ short; mesonotum flattened, with sharp lateral keels diverging anteriorly and a more obscure middle keel strongly shortened posteriorly, several black spots on disk and two on each side which are usually connected, two rather long spots on anterior margin, and two round spots before apex; tegmina broad, twice as long as broad, costal membrane three or four times as broad as radial area and traversed by simple, sometimes forked, and brown punctured veins, the longitudinal and apical areas also locally punctured; in the whole corium are scattered small granules, which form, especially behind basal cell and base of clavus, larger masses; the whole body as well as tegmina dirty-green, with

several large irregular pitchy-brown spots; wings milky-white; abdomen and legs dirty-green." (*Melichar.*)

"Length 17; exp. tegm. 32 millim."

Hab. Sikhim (*fide Melichar*).

Genus **GAJA**, nov.

Type, *G. definitiva*, Dist.

Distribution. Ceylon, according to present knowledge, but probably much more widely distributed.

Head (including eyes) considerably narrower than pronotum; vertex as long or a little longer than broad, more or less concave, its apical area curved upward, lateral margins carinate, but the anterior lateral angles not, or only slightly, prominent; face about one and a half times, sometimes twice, as long as broad, its lateral margins parallel or subparallel, anteriorly narrowed, medially carinate or subcarinate; clypeus elongate; pronotum about as long as vertex, its anterior margin rounded, its posterior margin angularly sinuate; mesonotum bicarinate; tegmina moderately flat, more than twice, nearly three times, as long as broad, the anterior and posterior margins parallel, apical margin rounded, costal membrane three or four times as broad as radial area, the first closely and distinctly transversely veined, the latter more obscurely and sparsely transversely veined, two prominent longitudinal veins emanating from basal cell, both strongly forked at a short distance from base, the whole discal area more or less transversely veined, except on apical area, where the veins are longitudinal and where there is a submarginal line formed of short transverse veins, inner area of clavus sparingly transversely veined, posterior area obliquely thickly granulose at base; wings broader than tegmina, most of the longitudinal veins outwardly furcate.

2063. **Gaja definitiva**, sp. n.

Body fuscous-brown, pronotum and legs brownish-ochraceous; tegmina very pale brownish-ochraceous, with fuscous-brown spots,

Fig. 248.—*Gaja definitiva.*

of which the three largest are on costal membrane, about five prominent but smaller on disk, with some irregular macular

markings on apical area; wings pale fuliginous, the veins darker, brownish on basal area; vertex of head with two straight central lines and a more waved submarginal line on each side fuscous; face with a central subcarinate fuscous line which does not quite reach base, the lateral margins greyishly tomentose; pronotum coarsely granulose, its anterior margin ridged, with a small central anterior callosity; mesonotum smooth, the lateral carinations defining a raised flat central space which medially contains two dark central longitudinal lines; posterior tibiæ with an apical spine; tegmina with the costal margin a little waved, the radial area obliquely prominent, the claval granules fuscous.

Length excl. tegm. 8; exp. tegm. 22 millim.

Hab. Ceylon; Maskeliya (*Green*).

2064. **Gaja inconspicua**, *Kirby* (Phalænomorpha), *J. Linn. Soc., Zool.* xxiv, p. 150 (1891); *Melich.* (Flatoides) *Ann. Hofmus. Wien*, xvii, p. 224 (1902); *id. Hom. Faun. Ceylon*, p. 92 (1903).

Body and legs ochraceous; pronotum dull greyish; tegmina dull greyish-brown with the veins darker; wings dull greyish-white with the veins pale brownish; vertex of head with the apical half considerably recurved and a little darker in hue, a

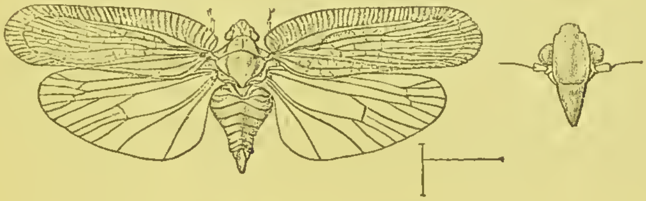

Fig. 249.—*Gaja inconspicua.*

central ridge on posterior half and the lateral margins also ridged; face with the basal and apical areas a little darker in hue, and with an obscure medial subcarinate line; pronotum thickly finely granulose, with a central ridge and two short transverse lines on each side of it; posterior tibiæ with a single spine; tegmina with some scattered minute fuscous spots on disk, the costal membrane and apical margin (excluding the veins) a little paler and more greyish, on posterior margin beyond clavus there is an obscure elongate brownish-ochraceous spot.

Length excl. tegm. 5; exp. tegm. 18 millim.

Hab. Ceylon (*Green, Brit. Mus.*); Bogawantalawa, Maskeliya (*Green, Coll. Dist.*).

2065. **Gaja facialis**, sp. n.

Body and legs greyish-brown, apical half of abdomen pale piceous; tegmina dull greyish, much suffused with pale fuscous and with scattered minute fuscous spots; wings very pale fuliginous with the veins fuscous; vertex slightly longer than breadth

Fig. 250.—*Gaja facialis.*

between eyes, with a central line and the lateral margins fuscous; face very long, twice as long as broad, with its central area more or less fuscous, anteriorly prominently narrowed where the margins are fuscous; pronotum greyish, thickly finely granulose; mesonotum with two dark central longitudinal fasciæ.

Length excl. tegm. 7; exp. tegm. 19 millim.

Hab. Ceylon; Maskeliya (*Green*).

This species is to be recognized by the very elongate face, in which respect it seems allied to the species described by Melichar as *Atracis subtilis*, which, however, is stated to have the vertex twice as long as breadth between eyes, and the face three or four times as long as broad.

2066. **Gaja ? subtilis**, *Melich.* (Atracis) *Ann. Hofmus. Wien*, xvii, p. 195 (1902); *id. Hom. Faun. Ceylon*, p. 92 (1903).

"Very like *parva*, Kirby, but particularly recognizable by the long vertex and longer face; vertex twice as long as breadth between eyes, conically narrowed in front and somewhat directed upward, with a medial brown longitudinal stripe and with brownish spots on each side which also form longitudinal fasciæ, anterior lateral angles broad, acutely angular, with a brown dash; face narrow, three or four times as long as broad, moderately arched and marbled with light pale brown, lateral margins parallel and sharpened; pronotum medially as long as vertex, produced anteriorly into folds, slightly spotted with brown; mesonotum with distinct lateral keels and flattened between them, spotted with brown, the spots mostly forming longitudinal lines; tegmina as long as in *parva*, narrow, pale yellowish-white with yellow veins locally punctured with brown, radial area narrow, costal membrane three or four times as broad as radial area, traversed by simple

veins here and there forked, and with a submarginal apical line; wings milky-white; abdomen and legs pale yellowish." (*Melichar.*)

"Length 15 to 16 millim."

Hab. Ceylon (*fide Melichar*).—Java. Borneo.

Genus **BOCHARA**, nov.

Type, *B. parva*, Kirby.

Distribution. Ceylon.

Head (including eyes) narrower than pronotum, the vertex broader than long, apically truncate, anteriorly, laterally, and medially ridged; face about half as long again as broad, slightly but not prominently narrowed anteriorly and posteriorly, basal margin truncate, obscurely centrally carinate on basal half, the lateral margins finely ridged; pronotum a little longer than vertex, rounded anteriorly, slightly sinuate posteriorly; mesonotum with two discal longitudinal ridges obliquely transversely connected anteriorly; tegmina about two and a half times as long as broad, the costal margin a little rounded, posterior margin straight, apical margin rounded, costal membrane about three or four times as broad as radial area, the first somewhat closely transversely veined, the latter scarcely visibly veined, two longitudinal veins emanating from basal cell, both bifurcating, the uppermost nearer base, numerous transverse veins on disk and an apical submarginal line formed of transverse veins; wings about as wide as tegmina.

2067. **Bochara parva**, *Kirby* (Phalænomorpha), *J. Linn. Soc., Zool.* xxiv, p. 151 (1891); *Melich.* (Atracis) *Ann. Hofmus. Wien,* xvii, p. 195, t. vi, f. 6 (1902); *id. Hom. Faun. Ceylon*, p. 92 (1903).

Body and legs brownish-ochraceous; tegmina dull pale ochraceous, the veins darker and many of them minutely spotted with

Fig. 251.—*Bochara parva.*

fuscous; wings dull greyish with the veins darker; vertex of head with the margins and central carination darker in hue; face minutely spotted or blotched with darker brown, the extreme lateral and anterior margins paler, ochraceous; pronotum greyish, with the anterior margin ochraceous, the disk thickly and finely

granulose; mesonotum with two discal dark longitudinal fasciæ; abdomen above somewhat greyish-brown.

Length excl. tegm. 5; exp. tegm. 15 millim.

Hab. Ceylon; Pundaluoya (*Green*, *Brit. Mus.*).

The above figure represents the actual type. In Melichar's figure the shape of the head and the venation of the wings are not typical.

2068. **Bochara nebulosa**, sp. n.

Body and legs pale ochraceous; vertex of head with a central fascia and the lateral margins piceous, with a short anterior oblique piceous line between them; face with some piceous speckles at base, and with a central piceous carinate line not

Fig. 252.—*Bochara nebulosa.*

extending beyond middle; pronotum with transverse fuscous spots; mesonotum with two central maculate or reticulate longitudinal piceous fasciæ; apical half of abdomen fuscous-brown; tegmina very pale ochraceous clouded and speckled with fuscous, the darkest and most prominent spots being two near base, one near end of basal cell, and another on claval area, many of the veins, especially on apical area, minutely speckled with fuscous; wings very pale fuliginous, the veins darker; vertex of head slightly broader than long; pronotum irregularly coarsely transversely striate, the anterior and lateral margins very distinctly ridged; mesonotum with the lateral ridges distinct and connected anteriorly; costal membrane about three times as broad as radial area.

Length excl. tegm. 5; exp. tegm. 19 millim.

Hab. Ceylon; Maskeliya (*Green*).

2069. Gen.? **lyncea**, *Fabr.* (Cicada) *Ent. Syst.* iv, p. 42 (1794); *id.* (Flata) *Syst. Rhyng.* p. 55 (1803); *Atkins. J. A. S. Beng.* lv, p. 83 (1886).

"Small; face flavescent, markings black; face glaucous, with a dull black spot on both sides cinctured flavescent and a small line in the middle; thorax glaucous, with two rounded dull black spots anteriorly; tegmina and wings hyaline, exterior margin flavescent." (*Fabricius.*)

Hab. "India."

This is another uncertain species of which no exact information is at present obtainable.

Subfamily XII. DELPHACINÆ.

Delphacida, *Stål, Hem. Afr.* iv, pp. 131 & 175 (1866).
Delphacina, *Stål, Öfv. Vet.-Ak. Förh.* 1870, p. 747; *Atkins. J. A. S. Beng.* lv, p. 35 (1886).
Delphacidæ, *Melich. Hom. Faun. Ceylon*, p. 11 (1903).
Asiracinæ, *Kirk. J. Bomb. Nat. Hist. Soc.* xiv, p. 52 (1902).

The *Dephacinæ* is the most easily recognized subfamily of the Fulgoridæ by a single characteristic alone, which consists of a long robust mobile spur attached to the apices of the posterior tibiæ. We probably know less of these insects than of any other group of the Fulgoridæ; they are small and generally minute species, easily overlooked and seldom collected, and although the present contribution is a considerable advance in number of genera and species to any previously given as found in British India, it is absolutely certain that it only refers to a fraction of the *Delphacinæ* really found in this region. The number of species from Ceylon collected by Mr. E. E. Green conclusively proves what can be done by other workers in our Indian Empire.

Synopsis of Genera.

A. Head not prominently produced in front of eyes.
- a. Head semicircular, vertex and face roundly continuous .... PARANDA, p. 466.
- b. Head not semicircular, vertex and face more or less discontinuous.
  - *a*. Vertex of head broader than long.
    - *a′*. Tegmina with oblique veins on apical costal area .... PUNDALUOYA, p. 467.
    - *b′*. Tegmina without oblique veins on apical costal area .... UPACHARA, p. 469.
  - *b*. Vertex of head longer than broad.
    - *a′*. Antennæ very long and broad .... PUROHITA, p. 470.
    - *b′*. Antennæ of moderate length.
      - *a²*. Face more than twice as long as greatest breadth.
        - *a³*. Vertex without a median transverse ridge and non-foveate .. SOGATA, p. 471.
        - *b³*. Vertex with a median transverse ridge, behind which the disk is foveate .... TOYA, p. 472.
      - *b²*. Face not more than twice as long as greatest breadth.
        - *a³*. Face with the carinations very broad and prominent, the central one furcate at base ...... NILAPARVATA, p. 473.
        - *b³* Face with the carinations only moderately pronounced, the central one not furcate at base. KALPA, p. 474.

B. Head more or less longly produced in front eyes.
  a. Vertex of head three times as long as breadth between eyes .... SARDIA, p. 475.
  b. Vertex of head much less than three times as long as breadth between eyes.
    a. Face almost three times as long as broad at clypeus .... ORCHESMA, p. 476.
    b. Face not quite twice as long as broad at clypeus...................... SMARA, p. 478.

The genera *Dicranotropis*, *Liburnia*, *Mestus*, and *Eodelphax* are enumerated but not included in the above synopsis, as I have not been able to examine the British Indian species which have been included in them.

Genus **PARANDA**.

Paranda, *Melich. Hom. Faun. Ceylon*, p. 92 (1903).

Type, *P. globiceps*, Melich.

Distribution. Ceylon.

"Head as broad as pronotum; vertex broad, convex, anteriorly rotundately rounded; face semicircular, arched, between the eyes half as broad as at clypeus, which is triangular, horizontal, keeled at middle and sides; eyes very flat, appressed, seen from side reniform; antennæ long, basal joint three times as long as broad, second joint twice as long as first with a short bristle, an ocellus near anterior margin of eye; pronotum narrow, flatly concave behind; tegulæ large; mesonotum triangular, arched, with five longitudinal keels, the middle ones strongly converging in front; tegmina somewhat widened behind, parchment-like, with indistinct veins, the apical part divided by a transverse fold from the corium, curved downward, membranous, traversed by many simple veins, three visible longitudinal veins in corium, the outer one in middle of corium forked, a forked vein in clavus; wings hyaline; legs simple, posterior tibiæ with two spines, basal joint of posterior tarsi almost twice as long as the two others together, at base of tarsi a movable spur.

"A genus specially characterized by the semicircular shape of the head and the very flat appressed eyes, as well as by the very long flat antennæ." (*Melichar.*)

2070. **Paranda globiceps**, *Melich. Hom. Faun. Ceylon*, p. 93, t. iii, f. 10, *a* (1903).

"Black, shining; vertex and face semicircular, thickly and finely punctured, black, shining with bluish, with an indistinct middle keel on the surface of face; clypeus dull yellowish-white, the tip yellow to brown, antennæ and legs brown; pronotum and mesonotum shining black, the apex of mesonotum pale

yellow; tegmina parchment-like, the veins weakly prominent, with numerous small black granules in rows, which are also present on the apical region on the closely-arranged apical veins: behind the transverse fold is a roundish, triangular, smooth, and strongly-shining space bordered by a rusty-yellow line, and behind this the membrane is glassy, traversed by from two to three granulose thickened veins; thorax and abdomen black; legs yellowish; femora black; tibiæ black at base, middle, and apex." (*Melichar.*)

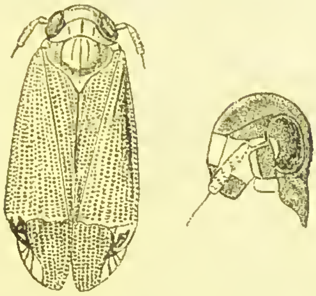

Fig. 253.—*Paranda globiceps.*

"Length, ♀, 4 millim."

Hab. Ceylon; Kandy (*fide Melichar*).

Genus PUNDALUOYA.

Pundaluoya, *Kirk. J. Bomb. Nat. Hist. Soc.* xiv, p. 52 (1902); *Melich. Hom. Faun. Ceylon*, p. 93 (1903).

Type, *P. ernesti*, Kirby.

Distribution. Ceylon.

Head (including eyes) narrower than pronotum; vertex short, broad, much broader than long, marginally and centrally carinate, eyes large and oblique; face a little longer than broad, marginally and medially strongly carinate, the medial carination bifurcate at base, obliquely narrowed to clypeus from the region of the eyes; clypeus medially and laterally carinate; antennæ inserted beneath the eyes, second joint very robust with short spiny hairs; pronotum short, about as long as vertex, marginally strongly and medially more obscurely carinate; mesonotum tricarinate; tegmina elongate, nearly three times longer than broad, basal half of costal margin sometimes arched and gibbous, apical margin rounded, the veins finely granulose, three longitudinal veins emanating from basal cell, the upper and lower bifurcating beyond middle, a strongly sinuated transverse line formed of transverse veins crossing tegmen beyond middle; posterior tibiæ with a long robust apical spur.

2071. **Pundaluoya ernesti**, *Kirby* (Delphax), *J. Linn. Soc., Zool.* xxiv, p. 140, t. v, f. 14 (1891); *Melich. Hom. Faun. Ceylon*, p. 94, t. ii, f. 12, *a*, *b*, *c* (1903).

"Testaceous; head, face, and thorax strongly tricarinated: tegmina subhyaline, with a broad brown bar at one-fourth of their length, running from the costa obliquely forward to the inner margin, this is followed by a row of three black dots, the first considerably below the costa, and the last resting on the

inner margin, the outer half of the tegmen is clouded, leaving a semilunular vitreous space on the costa, below which the shade is darkest, round the apex of the wings are eight black dots, two of

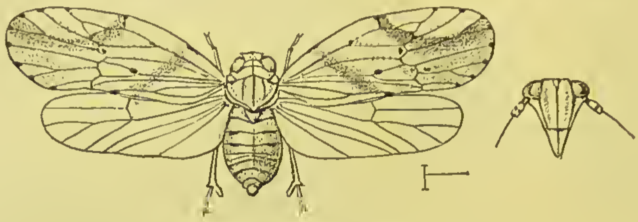

Fig. 254.—*Pundaluoya ernesti.*

which stand on the costa, within the clear space, and there is another isolated spot near the inner margin at about half its length ; the veins of the tegmina are set with hairs and in the clouded space are black, spotted with testaceous ; wings hyaline." (*Kirby.*)

Length excl. tegm. $2\frac{1}{2}$; exp. tegm. 10 millim.

Hab. Ceylon ; Pundaluoya (*Green*).

I have copied Mr. Kirby's description and figured his type.

2072. **Pundaluoya simplex,** *Kirby* (Delphax), *J. Linn. Soc., Zool.* xxiv, p. 141 (1891).

"Testaceous ; head, face, and thorax tricarinate ; tegmina yellowish-subhyaline, with a row of spots all round, except on the basal half of the costa, and four or five additional spots in the middle of the wing, mostly placed on the longitudinal veins." (*Kirby.*)

To be separated from *P. ernesti* by the clear non-fasciate tegmina.

Length excl. tegm. 3 ; exp. tegm. 10 to 13 millim.

Hab. Ceylon ; Pundaluoya, Maskeliya (*Green*).

Dr. Melichar has not mentioned this species in his 'Homopteren-Fauna von Ceylon.' When Mr. Kirby describes the head as tricarinate, he is of course including the lateral carinations.

2073. **Pundaluoya simplicia,** sp. n.

Body and legs ochraceous, lateral margins of the abdomen alternately spotted with yellow and black ; femora piceous or piceous-brown, their apices and the tibiæ and tarsi pale ochraceous ; face with the lateral margins and a central line bifurcating anteriorly pale castaneous ; lateral margins of clypeus pale castaneous ; antennæ ochraceous with the apex of the basal joint piceous ; eyes piceous ; vertex with the lateral margins and two central fasciæ testaceous ; pronotum with four central testaceous fasciæ which terminate before the anterior and posterior margins ; mesonotum with four testaceous fasciæ ; abdomen above in some specimens, as in the one here figured, considerably shaded with

piceous; tegmina hyaline with a yellowish tint, the veins yellow, with apical black markings, principally on apical margin, surrounding marginal cellular areas, and on the oblique veins at

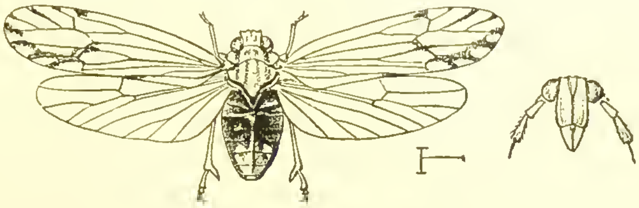

Fig. 255.—*Pundaluoya simplicia.*

apex of costal area; wings hyaline with faint opaline lustre, the veins pale fuscous.

Length excl. tegm. 2½; exp. tegm. 10 millim.

Hab. Ceylon; Peradeniya (*Green*).

Genus UPACHARA, nov.

Type, *U. stigma*, Dist.

Distribution. Ceylon.

Head (including eyes) a little narrower than pronotum; vertex very short and broad, a little rounded anteriorly; face a little longer than broad, centrally and laterally finely carinate, posterior margin sinuate before clypeus; pronotum a little longer than vertex, only slightly rounded anteriorly, concave posteriorly, with a very faint medial carination; mesonotum finely tricarinate: posterior tibiæ unspined, but with a robust prominent spur at apex; tegmina about one-third longer than abdomen, the veins longitudinal, a series of transverse veins beyond middle, the middle longitudinal vein on apical area forked at apex.

2074. **Upachara stigma**, sp. n.

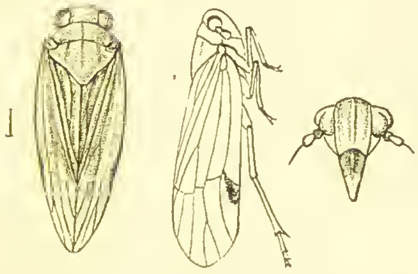

Fig. 256.—*Upachara stigma* *.

Head (including face), pronotum, and mesonotum ochraceous; eyes fuscous-brown; mesonotum clouded with pale castaneous-brown; abdomen above more or less piceous; clypeus ochraceous with a large black basal spot; sternum and legs pale ochraceous; abdomen beneath black; tegmina hyaline, the venation pale brownish, the veins here and there sparsely finely granulose and

* In the above figure the artist has failed to portray the long mobile spur at apex of posterior tibiæ.

with a large black costal spot a little beyond middle, their apices finely infuscate.

Length incl. tegm. $2\frac{1}{2}$ millim.

Hab. Ceylon; Peradeniya (*Green*).

Genus PUROHITA, nov.

Type, *P. cervina*, Dist.

Distribution. Ceylon.

Head (including eyes) narrower than pronotum; vertex very narrow, extending a little in front of eyes, laterally strongly ridged and anteriorly prominent, medially very obsoletely carinate; face long, narrow, medially and laterally carinate, strongly depressed and impressed between eyes, and thence obliquely widened to clypeus, which is also medially and laterally carinate; antennæ inserted in a groove on under surface of eyes, first joint very long and broad with a central ridge, on each side of which the surface is obliquely reclined, second joint barely half the length of first, thickened but much narrower and with spinous hairs; pronotum scarcely longer than vertex, tricarinate; mesonotum longer than head and pronotum together, tricarinate; posterior tibiæ without spines, but with a long, robust, apical spur; tegmina longly passing the apex of the abdomen, longitudinally veined, a series of transverse veins at about one-third from apical margin, beyond which the longitudinal veins are distinctly thickened and the central one furcate at apex, most of the veins are also finely and somewhat obscurely granulose.

2075. **Purohita cervina**, sp. n.

Body and legs ochraceous; eyes slaty-grey; vertex with the lateral margins pale castaneous; face dark ochraceous and medially and laterally narrowly pale castaneous to about middle of eyes, thence stramineous to clypeus and laterally and medially a little darker, and with a transverse sinuate ochraceous line before apex; clypeus ochraceous, laterally and medially stramineous; antennæ ochraceous, sprinkled with testaceous; pronotum with two small discal tubercles; mesonotum with two longitudinal darker fasciæ; tegmina subhyaline, the veins brownish-ochraceous and mostly finely granulose, on apical third broader and much more distinctly prominent, the

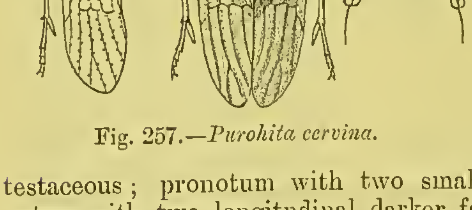

Fig. 257.—*Purohita cervina.*

extreme costal edge pale yellow; the vertex is a littlo darker than the pronotum or mesonotum; the lateral areas of the pronotum are darker than its disk; the carinations to the mesonotum pale and distinct, and its posterior angle broad and sublobate; the granules to the tegminal veins emit short erect hairs.

Length incl. tegm. 5 millim.

Hab. Ceylon (*Green*, *Brit. Mus.*).

Genus **SOGATA**, nov.

Type, *S. dohertyi*, Dist.

Distribution. Tenasserim.

Head (including eyes) distinctly narrower than pronotum; vertex a little longer than broad, slightly widened at base; face very long and narrow, more than twice as long as broad, laterally and medially strongly carinate; antennæ inserted near lower margins of eyes, second joint much longer than first and moderately incrassate; clypeus slightly broader than face, laterally and medially carinate; pronotum about as long as vertex, tricarinate; mesonotum tricarinate; posterior femora unspined, but with a long robust spur at apex; tegmina longly passing apex of abdomen, much longer than broad, the apex somewhat conically ronnded, veins longitudinal, crossed beyond middle by an irregular series of transverse veins, beyond which, on upper half, several oblique veins extend to costal margin.

2076. **Sogata dohertyi**, sp. n.

Head, pronotum, and mesonotum testaceons, with a pale greyish central longitudinal fascia running percnrrently through

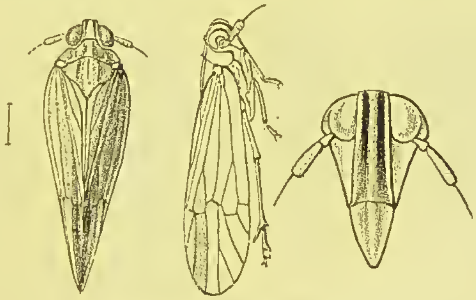

Fig. 258.—*Sogata dohertyi.*

them; on anterior area of vertex there is on each side a submarginal black line, eyes greyish-brown; lateral carinations to pronotum and mesonotnm indistinctly pale ochraceous; antennæ ochraceous; body beneath and legs pale ochraceous; face with the central carination white, margined with black on each side,

the lateral ridges ochraceous ; tegmina pale brownish-grey, darker and semiopaque towards basal area, beyond the transverse veins the colour is more greyish, and a broad inner submarginal longitudinal pale fuscous fascia extends from the transverse veins to the apical margin.

Length incl. tegm. 4½ millim.

Hab. Tenasserim ; Myitta (*Doherty*).

Genus TOYA, nov.

Type, *T. attenuata*, Dist.

Distribution. Ceylon.

Head (including eyes) a little narrower than pronotum ; vertex narrow, a little longer than broad, with a transverse ridge between the eyes, behind which the surface is quadrangularly foveate, and in front of which it is tricarinate, the apices of the carinæ being distinctly prominent ; face long and narrow, more than twice as long as broad, medially and laterally carinate, the central carination furcate at base *, moderately ampliate on posterior half ; clypeus tricarinate ; pronotum slightly wider than vertex, between the eyes truncate, tricarinate, its posterior margin concavely sinuate ; mesonotum tricarinate ; tegmina about twice as long as body, apically rounded, the veins longitudinal, crossed beyond middle by an irregular series of transverse veins, on apical area three oblique veins extend to costa ; posterior tibiæ with two spines, one before and the other near apex, and with a long robust apical mobile spur.

2077. **Toya attenuata**, sp. n.

Vertex of head piceous, the ridges brownish-ochraceous ; eyes dull black, their extreme margins brownish-ochraceous ; face black with the carinations dull ochraceous ; clypeus similarly marked and coloured as face ; pronotum piceous-brown, the carinations dull ochraceous ; mesonotum piceous, the carinations and extreme lateral areas dull ochraceous ; tegmina hyaline with an ochraceous tint, the veins pale fuscous ; legs yellowish with the tarsal claws black.

Fig. 259.—*Toya attenuata.*

Length incl. tegm. 3 millim.

Hab. Ceylon ; Peradeniya (*Green*).

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* This character has been omitted in the figure by the artist.

Genus NILAPARVATA, nov.

Type, *N. greeni*, Dist.
Distribution. Ceylon.

Head (including eyes) narrower than pronotum; vertex longer than broad, lateral margins strongly carinate, their anterior angles a little prominent, two oblique discal carinations commencing at about middle of lateral margins and angularly meeting slightly in front of anterior margin, the basal margin ridged; face elongate, very much longer than broad, centrally and laterally carinate, the carinations very broad and prominent, the central one furcate at base, apical margin strongly ridged; clypeus strongly, broadly, laterally and medially carinate; antennæ inserted beneath eyes, second joint much longer than first, incrassate and granulose; pronotum about as long as vertex, centrally, laterally, and anteriorly carinate; mesonotum faintly tricarinate; tegmina less than three times as long as broad, the apical margin rounded, costal and inner margins subparallel, crossed at about two-thirds from base by an irregular series of transverse veins, defining an apical area, in which the upper longitudinal vein obliquely bifurcates to costal margin and the lower longitudinal vein strongly bifurcates near its base; wings at base broader than tegmina; posterior tibiæ with a spine near middle, another at apex, and with a long robust apical spur.

2078. **Nilaparvata greeni**, sp. n.

Body and legs very pale ochraceous; head and mesonotum pale castaneous-brown; vertex with the margins pale ochraceous, and with anterior interspaces between the central and lateral carinations black; face with the carinations very pale ochraceous and more or less margined on each side with piceous; clypeus pale castaneous with the carinations very pale ochraceous; pronotum

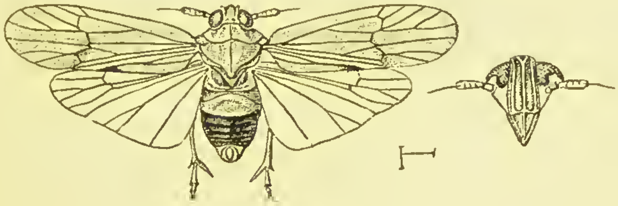

Fig. 260.—*Nilaparvata greeni.*

dull pale ochraceous; mesonotum with the carinations faint and pale ochraceous; abdomen with the apical area either piceous (as in figure) or concolorous, and this may prove to be a sexual character; tegmina subhyaline with a dull yellowish tint, the transverse veins and the apical venation fuscous, an elongate

black spot at apex of clavus; wings hyaline with an opaline lustre, the veins pale brownish.

Length excl. tegm. 2½; exp. tegm. 7 millim.

Hab. Ceylon; Peradeniya (*Green*).

Genus KALPA, nov.

Type, *K. aculeata*, Dist.

Distribution. Ceylon.

Head (including eyes) narrower than pronotum; vertex a little longer than broad, apex of the lateral margins prominent, with two central carinations converging anteriorly; face very long and slender, centrally and laterally carinate, truncate before clypeus, which is only of moderate length and triangular; antennæ inserted in a groove beneath the lower surface of the eyes, first joint robust, second longer, thicker, and tuberculous; pronotum a little longer than vertex, centrally carinate; mesonotum about as long as pronotum and vertex together, tricarinate; posterior tibiæ with two spines, one near middle, the other at apex, and with a very robust apical spur; tegmina considerably passing the abdominal apex, the venation generally as in *Pundaluoya*.

Agreeing in many respects with the description of *Eodelphax*, Kirk., but with the posterior tibiæ bi- not trispinose, &c.

2079. **Kalpa aculeata**, sp. n.

Head above and mesonotum pale castaneous, pronotum ochraceous; mesonotum with the carinæ, apex, and lateral areas pale ochraceous; head beneath, sternum, and legs ochraceous; abdomen pale castaneous; tegmina semihyaline with a yellowish tint, the veins a little darker; a short dark linear streak on extreme posterior margin near apex of clavus; face and clypeus with the ridges very prominent; vertex of head with a double foveation at base, the lateral ridges very prominent; pronotum with the central carination distinct and with an oblique linear rugosity on each lateral area; antennæ pale ochraceous.

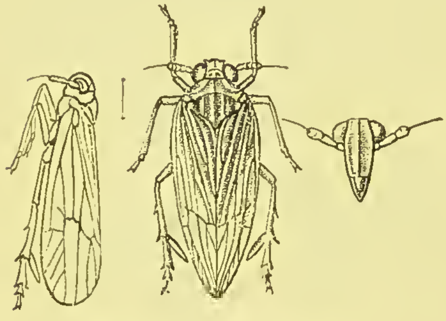

Fig. 261.—*Kalpa aculeata.*

Length incl. tegm. 4½ millim.

Hab. Ceylon; Peradeniya (*Green*).

Genus SARDIA.

Sardia, *Melich. Hom. Faun. Ceylon*, p. 96 (1903).

Type, *S. rostrata*, Melich.

Distribution. Ceylon.

"Head and eyes narrower than pronotum; vertex narrow, three times as long as breadth between eyes, where it is narrowed, sides nearly parallel and finely keeled, anterior margin straightly truncate; face somewhat long, narrow, contracted beneath eyes and then slightly broadened at sides, finely keeled; clypeus triangular, laterally and medially keeled; eyes elongately oval, sessile, concave beneath; antennæ passing eyes, basal joint cylindrical, second joint rather longer, weakly clavate; ocelli present, small, situate at frontal border of eyes; pronotum half as long as vertex, anteriorly straightly truncate, posteriorly concave, with three long keels, the lateral ones bent outwardly; mesonotum large, slightly arched, tricarinate, lateral keels converging in front, apex of mesonotum lengthened and rounded; tegmina very long, twice as long as the whole body, not widened behind and rather obliquely apically rounded, three longitudinal veins in corium, the outer and inner ones forked at basal third, four apical veins, the second double, the fourth singly forked, tegminal cells very long, especially second middle one, a forked vein in clavus the base of which extends to the apex which does not reach the last transverse vein, between which and apex of clavus there is a space equal to one-third the length of clavus; abdomen rather flattened; legs slender, posterior tibiæ with two spines, posterior tarsi with the basal joint longer than the other two together and with a large dentated mobile spur at base." (*Melichar.*)

2080. **Sardia rostrata**, *Melich. Hom. Faun. Ceylon,* p. 96, t. ii, f. 4, *a, b* (1903).

"Vertex of head rusty-yellow, spotted with brown at middle of apex and neck; eyes brown; face black, between the eyes sometimes yellowish except at apex, lateral and middle keels yellowish; antennæ yellow with a black spot at base; genæ and clypeus black keeled with yellow, the flattened middle keel with three black spots at apex which are often confluent, and on upper margin provided with two black spots visible on side view; pronotum black, its posterior margin narrowly bordered with white, on front margin two contiguous rusty-yellow spots which are sometimes absent; mesonotum rusty-brown, its apex yellowish, two longitudinal brown streaks on sides and underlying brown spots before the apex; in the ♂ the colour is darker; vertex, pronotum (except the pale posterior border), and mesonotum piceous, only apex of mesonotum yellowish; tegmina clouded with brown, darker on apical area, with pale marginal spots between the ends of the

veins, a large hyaline spot in first apical cell, all the veins brown set with fine granules from which here and there arise small hairs; claval marginal vein yellowish-white, black at apex, and the area from apex of clavus to tegminal apex filled up with black; wings

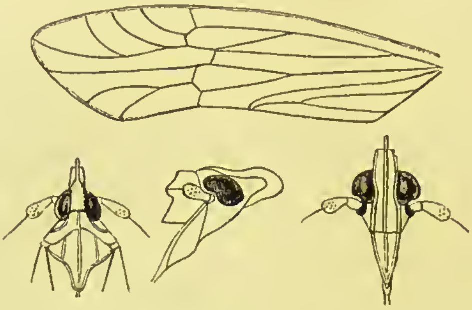

Fig. 262.—*Sardia rostrata.*

hyaline, veins brown; abdomen above brown to black, in ♀ yellowish beneath, base of ventral segments darker, in ♂ piceous; legs pale yellow, bases of tarsal claws and spur brown." (*Melichar.*)

"Length 4 to 4½ millim."

Hab. Ceylon; Henaratgoda (*fide Melichar*).

Genus ORCHESMA.

Orchesma, *Melich. Hom. Faun. Ceylon*, p. 94 (1903).

Type, *O. marginepunctata*, Melich.

Distribution. Ceylon.

"Very near *Pundaluoya*, Kirk., but differs by the long head, angularly produced in front, the rather long face evenly rounded outside, and the narrow tegmina, which are close to the body and apically are obliquely rounded; vertex nearly as long as broad posteriorly, between the eyes and towards the front angularly narrowed, at apex rounded, upper surface flat, on sides and in front distinctly keeled, the keels running from the apex to the straight hind margin; face almost three times as long as broad at clypeus, distinctly narrowed above, outer margins evenly, weakly, curved outward and keeled, in the middle a continuous keel, clypeus one-third the length of face, in the middle and on sides keeled, bending downward and forming with disk of face an obtuse angle; eyes reniform, the front lobes larger than the posterior ones; antennæ inserted in the cavities passing the eyes, the second joint as long as first; as in *Pundaluoya* there runs from the lower margin of the eye obliquely down to suture of clypeus a narrow fold, behind which the antennal cavities lie; ocelli distinct; pronotum as long as vertex, rounded in front between the eyes, posteriorly obtusely angularly excavated, with three sharp keels;

mesonotum twice as long as pronotum, before apex somewhat narrowed, with three longitudinal keels, the lateral ones converging in front; tegmina hyaline, apically obliquely and broadly rounded, twice as long as abdomen; veins delicate, punctured, and set with hairs; wings hyaline; legs simple, posterior tibiæ with a movable spur at base of tarsi." (*Melichar.*)

2081. **Orchesma marginepunctata**, *Melich. Hom. Faun. Ceylon*, p. 95, t. iii, f. 3, *a*, *b*, *c* (1903).

"Body narrow, pale green; face moderately long, narrowed above, below straightly truncated at clypeal suture; 'cheek-folds' orange-yellow; on the pronotum and mesonotum are two somewhat long orange-yellow stripes between the keels; tegmina hyaline, the veins white, on both sides alternately accompanied by white dots, from which spring short, erect, yellowish-white hairs,

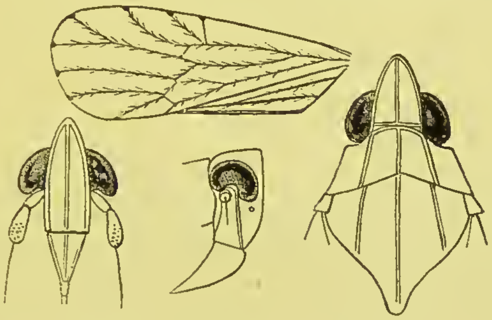

Fig. 263.—*Orchesma marginepunctata.*

also single short stretches of the veins are set with brown granules, the apical and transverse veins shaded with pale yellowish, and two similar small spots visible in corium between the longitudinal veins, at the apices of the apical veins are black dots; wings hyaline; abdomen and legs pale yellowish-white; tarsal claws black." (*Melichar.*)

"Length, ♀, 4 millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

2082. **Orchesma serendiba**, *Melich. Hom. Faun. Ceylon*, p. 95, t. ii, f. 5 (1903).

"Body narrow, rusty-yellow, shining, formed as in preceding species; face narrowed both above and below and rounded off from clypeus, so that it is very narrowly oval, stained with carmine-red, the keels whitish; the downward sloping clypeus and sides of head are rusty-yellow; eyes brown; antennæ yellowish-white, basal joint bordered with black at apex, secoud joint

medially ringed with black, between the warts are short black bristles; vertex, pronotum, and mesonotum rusty-brown, keels yellowish-white bordered with black; tegmina formed as in preceding species, hyaline, shining, basal half and inner half of apical area rusty-yellow, which colour runs radiately along the apical veins to costal margin, so that hyaline marginal stripes are formed between the veins, between the basal colouring and the apical parts there is a hyaline zone, veins delicate, yellowish, alternately thickly punctured and clothed with erect black hairs, near clavus is a black spot which lies on the transverse veins and is a little produced in front on both the longitudinal veins, so that it resembles a fork, no marginal spots on apical margin; wings hyaline with rusty-yellow veins; sternum and abdomen rusty-yellow, abdomen more orange-yellow; legs pale yellow, tarsal claws black." (*Melichar.*)

"Length, ♂, 4 millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

Genus **SMARA**, nov.

Type, *S. festiva*, Dist.

Distribution. Ceylon.

Head long, triangular, projecting longly in front of eyes, narrower than pronotum; face long, triangular, centrally longitudinally carinate, distinctly moderately obliquely gibbous at base; clypeus centrally ridged and its margins finely carinate; pronotum well developed, tricarinate, its lateral areas depressed, its posterior margin somewhat emarginate; mesonotum tricarinate; legs moderately short, posterior tibiæ armed with a prominent blunt robust spur at apex, first joint of posterior tarsi elongate; antennæ prominent, inserted just below the posterior margins of eyes, which are concavely sinuate, the second joint strongly incrassate; tegmina gradually ampliate from base to apex, the veins almost wholly longitudinal, those from base to apical area granulose and apically longitudinally globosely elevated, followed by a prominent transverse vein, thence the veins are again longitudinal, very finely granulose, the uppermost curved to apical costal margin, the second very strongly bifurcate before apex.

2083. **Smara festiva**, sp. n.

Head, pronotum, and mesonotum pale yellowish-green; vertex with two central black lines, and a short lateral longitudinal black line in front of eyes; face sometimes a little more virescent, with a black spot near base and a transverse one before clypeus, which is also black; pronotum with two central and two lateral lines on each side black; mesonotum with two central and two (sometimes only one) lines on each lateral area black; tegmina fuscous-brown, extreme base virescent, costal membrane, a broad streak

above clavus, globular apices to longitudinal veins, and the veins on apical area black, prominent greyish-white spots on apical-costal and apical margins, most of them more or less margined with piceous-black, the ground-colour of the apical area is also dull dark ochraceous; abdomen above black with the segmental

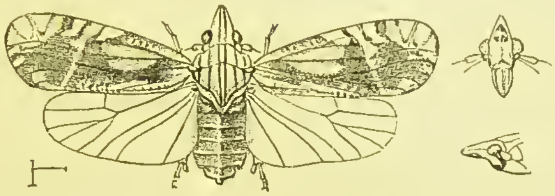

Fig. 264.—*Smara festiva.*

margins ochraceous, beneath more prominently ochraceously marked; legs more or less piceous, apices of femora and tibiæ and the tarsi stramineous; antennæ ochraceous, piceous at base; tegmina sparingly distinctly longly pilose, almost hirsute.

Length excl. tegm. 3; exp. tegm. 8 millim.

Hab. Ceylon; Pundaluoya (*Green*).

2084. **Smara atrata**, sp. n.

Head, pronotum, and mesonotum coloured and marked as in *S. festiva*; face with the basal spot smaller, and the apical spot more centrally divided by the longitudinal carination; clypeus black; tegmina uniformly piceous, with two short, oblique, virescent stripes at extreme base and with the transverse vein before apical area somewhat suffused with greyish; abdomen piceous; legs darker than in *S. festiva*. Beside the different colour of the tegmina compared with those of the preceding species, the surface is more even, the veins less prominent but more distinctly granulose, they are also much less, in fact only obscurely, pilose; the face is more distinctly centrally carinate than in *S. festiva*.

Length excl. tegm. $2\frac{1}{2}$; exp. tegm. 7 millim.

Hab. Tenasserim; Myitta (*Doherty*).

Genus **DICRANOTROPIS**.

Dicranotropis, *Fieb. Delph. Verh. z.-b. ges. Wien*, xvi, p. 521 (1866); *id. Cic. Rev. & Mag. Zool.* (3) iii, p. 378 (1875); *Melich. Hom. Faun. Ceylon*, p. 106 (1903).

Type, *D. hamata*, Boh., a Palæarctic species.

Distribution. Palæarctic and Oriental Regions.

"This genus is recognizable by the long triangular face, which is distinctly laterally and medially keeled, the two middle keels proceeding from vertex unite at middle disk in one stem; antennæ

long, all the joints cylindrical; pronotum tricarinate, the lateral carinations outwardly curved; mesonotum tricarinate; tegmina shortened and parchment-like, or developed, membranous, longly passing abdominal apex, and hyaline, veins set with black granules; legs long, anterior tibiæ somewhat laterally compressed, posterior tibiæ with two spines." (*Melichar.*)

2085. **Dicranotropis nigropunctatus,** *Motsch.* (Mestus?) *Bull. Soc. Nat. Mosc.* xxxvi (3) p. 112 (1863); *Melich.* (Dicranotropis) *Hom. Faun. Ceylon,* p. 160, t. iii, f. 12, *a* (1903).

"Subovate, shining, sordidly fusco-testaceous, variegated with black; tegmina subhyaline testaceous, with oblique black humeral spots and with the veins much punctured with black to apices;

Fig. 265.—*Dicranotropis nigropunctatus.*

head and thorax as in *Mestus testaceus*, Motsch.; tegmina shorter than the body, their apices roundly truncate; the four anterior tibiæ black, depressed, subdilated; antennæ with the second joint three times longer than the first." (*Motschoulsky.*)

"Length $\frac{3}{4}$ lin.; lat. elytr. post. $\frac{1}{2}$ lin."

Hab. Ceylon; Patannas Mts. (*fide Motschoulsky*).

I do not know this species, and have copied the diagnosis of Motschoulsky and the figure of Melichar.

Genus LIBURNIA.

Liburnia, *Stål, Hem. Afr.* iv, p. 179 (1866); *Fieb. Cic. Rev. & Mag. Zool.* (3) iii, p. 376 (1875); *Melich. Mitt.-Europ. Cicad.* p. 69 (1896); *id. Hom. Faun. Ceylon,* p. 97 (1903).

Type, *L.* (*Embolophora*) *monoceros*, Stål, an Ethiopian species.

Distribution. Probably universal.

I have not received a single species of this genus from British India, and find it impossible to give the generic characters for the

following species described by Dr. Melichar, as they doubtless represent more than one genus. Stål, who first founded *Liburnia* (*supra*), gave divisional characters which were obviously truly generic. Fieber founded a number of genera which have been incontinently sunk by most other writers, and probably on insufficient study, for they are all minute insects, and their proper discrimination awaits a patient and capable monographer in the possession of ample material.

2086. **Liburnia fumipennis**, *Melich. Hom. Faun. Ceylon*, p. 97 (1903).

"Vertex twice as long as breadth between the eyes, beyond the eyes yellow with an anterior narrow triangular white mark, lateral depressions anteriorly black; face narrow, elongate, a little narrower between the eyes than at base, black, with slender white carinæ, the medial carination black, genæ and clypeus black with white carinæ, eyes brown; antennæ stretching beyond the eyes, the basal joint cylindrical, white, second joint yellowish-white; pronotum about as long as vertex, yellowish-white with two small brownish indentations between the carinæ; tegulæ yellowish-white; mesonotum reddish-yellow in ♀, black in ♂, its posterior margin and apex yellowish; tegmina hyaline, piceous to black, the apical margins brighter, veins brown, finely granulose, marginal vein to clavus white with the apex black; wings fuliginous, veins brown; abdomen piceous to black, extreme segmental margins narrowly and brightly paler; legs pale yellow, posterior tibiæ with two spines, the apices of which are brown." (*Melichar.*)

"Length, ♂ ♀, 3 to $3\frac{1}{2}$ millim."

Hab. Ceylon; Henaratgoda, Peradeniya (*fide Melichar*).

2087. **Liburnia venosa**, *Motsch.* (Delphax) *Bull. Soc. Nat. Mosc.* xxxvi (3) p. 109 (1863); *Melich.* (Liburnia) *Hom. Faun. Ceylon*, p. 98 (1903).

"Body short, compressed, ferruginous; vertex of head as long as broad, slightly narrowed between the eyes, ferruginous to piceous with white ridges, the central and lateral carinations equally stout, the first forming at the junction of face and vertex an elongate narrow triangle connected with the vertical white lateral carinæ by a transverse white ridge, and also furnished with a stout medial ridge towards the neck; clypeus concolorous with face and with a white ridge; eyes brown; antennæ piceous; pronotum and mesonotum ferruginous, with yellowish-white carinations, the medial one stout and white; tegmina hyaline clouded with pale brownish, the veins yellow, the terminal vein brown, as are also the transverse veins on the inner half of the corium, thus forming a thickened transverse fascia, while the outermost vein is

white and very slender, veins sparsely brownly granulose, the granules here and there with short brown hairs, clavus generally somewhat strongly clouded, the terminal vein yellowish-white; wings hyaline, veins yellow; abdomen ferruginous to piceous, with a brighter-coloured medial ridge above, several elongate lateral spots beneath and the segmental margins also paler and more brightly coloured; legs pale yellow, the tibiæ and tarsal claws dark brown." (*Melichar.*)

Length, ♂ ♀, 3 to $3\frac{1}{2}$ millim.

Hab. Ceylon; Henaratgoda, Peradeniya (*fide Melichar*).

2088. **Liburnia minutula,** *Melich. Hom. Faun. Ceylon,* p. 98 (1903).

"♂. Body bright yellow; vertex as broad as long, not extending beyond the eyes, the frontal facial triangle indistinct; face and genæ deeply black, as are also the lateral and well-marked medial carinations; clypeus and antennæ bright yellow; pronotum yellowish-white, tricarinate, and sometimes with brown spots on anterior margin; mesonotum bright yellow, its apex whitish, tricarinate, the lateral carinæ converging anteriorly; tegmina short, apically rounded, apical angle more strongly rounded than the posterior one, bright yellow with paler yellow longitudinal veins, apical margin whitish, inner angle with a dark elongate spot; abdomen yellow or orange-yellow, medially ridged and with a lateral dark brown elongate spot; body beneath and legs bright yellow, the tarsal claws and apices of the spines to posterior tibiæ darker.

"♀. Body pale yellowish-white; face pale yellow, not black; eyes brown; antennæ bright yellow; tegmina yellowish, the terminal vein white, a large darker brown spot on the terminal margin and a smaller darker spot on the apical margin near the sutural apex; abdomen pale yellowish-white, on each side with a triangular swarthy spot, the apex of which is directed posteriorly; legs pale yellowish-white, the apices of the spines to the posterior tibiæ and the tarsal claws brown." (*Melichar.*)

"Length, ♂ 2, ♀ $2\frac{1}{2}$ millim."

Hab. Ceylon; Henaratgoda, Peradeniya (*fide Melichar*).

2089. **Liburnia alboguttata,** *Melich. Hom. Faun. Ceylon,* p. 99, t. ii, f. 6, *a, b* (1903).

"A very small and moderately broad species; vertex of head as broad as long, not extending beyond the eyes, carinate, and, like the pronotum and mesonotum, of a pale yellow colour; face elongate, pale yellow, contracted and brownish-yellow between the eyes, sharply medially and laterally carinate; clypeus pale yellow; eyes brown; antennæ brownish-yellow; tegmina short,

only covering the basal area of the abdomen, rounded apically, shining black, with distinct anteriorly directed veins, a large white apical marginal spot, a smaller white marking on the apical margin, and a discal white spot divided by the tegminal suture, a small white elongate spot on the lower half of the terminal margin of the tegulæ; sternum pale yellow; abdomen piceous above, the apex (genital segment) whitish, beneath ferruginous; legs pale yellow, apices of the spines to posterior tibiæ and the tarsal claws brown, the posterior legs are frequently light brownish." (*Melichar.*)

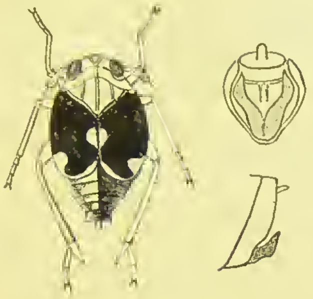

Fig. 266.—*Liburnia alboguttata.*

"Length, ♂, $1\frac{1}{4}$ millim."

Hab. Ceylon; Henaratgoda, Peradeniya (*fide Melichar*).

2090. **Liburnia albicollis**, *Motsch.* (Delphax) *Bull. Soc. Nat. Mosc.* xxxvi (3) p. 110 (1863); *Melich.* (Liburnia) *Hom. Faun. Ceylon*, p. 99, t. ii, f. 23, *a, b* (1903).

Vertex short, extending but little beyond the eyes, yellow-brown with elongate white carinæ; face elongate, narrow, constricted between the eyes, with lateral and medial white carinæ; at the passing of the vertex into the face the median carina forms a small triangle the sides of which are connected with one another by a transverse ridge which is posteriorly angularly broken, and from the apex of which a short median carina runs to the neck; clypeus triangular, brown, medially and laterally carinate; eyes brown; antennæ yellowish; pronotum with three white carinæ on the anterior margin frequently marked with two piceous spots; mesonotum piceous-brown to pitch-black (in ♀ frequently ferruginous), the margin often reddish-brown narrowly rounded, apex white, and with three parallel elongate carinæ which are coloured black inclining to ferruginous (in ♀); tegmina hyaline slightly clouded with yellow, covering the abdomen, threaded by yellowish slightly brown granulate nervures, the curved vein of the apical margin brown, a piceous-brown spot on the marginal suture at the base of the forked vein, which frequently, especially in the brighter-coloured ♀, is indistinct or even absent; wings hyaline with brown veins; abdomen piceous, ferruginous at base; legs yellowish, the apices of the spines and the tarsal claws brown.

♂ ♀. Length $2\frac{1}{2}$ millim.

Hab. Ceylon; Henaratgoda (*fide Melichar*).

2091. **Liburnia frontalis**, *Melich. Hom. Faun. Ceylon*, p. 100 (1903).

Very like *L. albicollis*, Motsch., in form and pattern of markings and only to be easily distinguished from that species by the outer margin of the narrow black front being broadly yellowish-white, whereas the medial keel, which is very distinct, appears to be black; the basal joint of the antennæ is piceous, the second joint rusty-yellow; pronotum white; mesonotum black, the apex broadly yellowish-white; tegmina hyaline with delicate yellow lightly punctured veins, and a long brown streak on the terminal margin; abdomen black, the segments narrowly bordered with yellowish-white; legs yellowish.

♂. Genital segment black with a narrow excavate yellow margin above, the angles obtuse; anal tube yellow, bearing on the lower margin two spine-like processes, adjacent to one another, erect and directed downwards; claspers short, yellow, with the apex narrowed, placed one with the other in shape of pincers, so that they border an oval-shaped space.

"♀. Vaginal cushion and ovipositor black; anal tube yellow; anal petiole black." (*Melichar.*)

"♂ ♀. Length $2\frac{1}{2}$ millim."

Hab. Ceylon; Henaratgoda (*fide Melichar*).

2092. **Liburnia psylloides**, *Leth.* (Delphax) *Ind. Mus. Notes*, iii, p. 105 (1896), fig.; *Melich.* (Liburnia) *Hom. Faun. Ceylon*, p. 101, t. ii, f. 22 (1903).

"Vertex longer than the breadth between the eyes and extending somewhat beyond the eyes, yellowish-white; face elongate, narrow, contracted a little between the eyes, black in the ♂, yellowish-brown in the ♀, with white carinæ, the median carina distinctly stouter than the marginal carinæ and forming between the face and the vertex an elongate narrow triangle, which is yellowish-white, whilst the black depression in the face is extended up to the vertex; the frontal triangle is bordered on the vertex by an angular, broken, transverse lamella, which, although no elongate carina extends to the neck, is connected by short transverse ridges with the lateral carinæ on the vertex; in the ♀ the facial depression is dark only between the eyes, towards the lower portion yellowish-brown; clypeus in both sexes with a yellowish-white carina; eyes brown; cheeks black, with a white carina on the margin; antennæ pale yellow (Lethierry says of the antennæ, 'first joint yellow, apex black; second yellow, base black; apical joint black'; but in the very many specimens that I have examined I have found the antennæ uniformly pale yellow); pronotum and vertex black, the carinæ as well as the parts lying between them, the pronotum and mesonotum to the tip white; tegmina hyaline, transparent, with yellowish veins that are studded with delicate yellowish granules, from which spring short brown hairs, the transverse veins of the inner half of the tegmina

bordered brown, likewise the apices of the apical veins, which appear very thick; on the inner apical margin is placed a brownish lunular band in which lie three semicircular bright marginal spots between the veins; the cell between the clavus and suture of corium and the inner sector (area suturalis) is in its whole length clouded with smoky-brown; at the apices of the shafts of the veins of the clavus a black spot; wings hyaline with yellowish veins; pectus in ♂ black, in ♀ yellow spotted with black, a black spot in addition on the sides of its posterior portion; abdomen in ♂ black, the margins of the segments bordered narrowly with yellow, in the ♀ above black, below yellowish, the base of the segment darker; legs pale yellow, the tarsal claws black.

"♂. Genital segment cylindrical, black, narrowly bordered with white, elongate oval, above roundly emarginate; in the emargination lies the narrow anal tube, from which protrudes the yellowish anal spike; claspers long, as narrow at the bottom as at the tip, straightly truncate, the angle somewhat produced, at the apex inclined one to the other like a pair of pincers and set with short hairs.

"♀. Vaginal cushion cylindrical, yellow; the ovipositor brown; adjacent plates elongate, only touching one another at the base." (*Melichar.*)

"♂ ♀. Length $2\frac{1}{2}$ to $2\frac{3}{4}$ millim."

Hab. Ceylon; Henaratgoda (*fide Melichar*).

2093. **Liburnia unistrigosa**, *Motsch.* (Delphax) *Bull. Soc. Nat. Mosc.* xxxvi (3) p. 108 (1863); *Melich.* (Liburnia) *Hom. Faun. Ceylon*, p. 101, t. ii, f. 17, *a* (1903).

"Body narrow, elongate, yellowish-brown in ♂, rusty-yellow in ♀; vertex extending only a little beyond the eyes, carinate; face elongate, not narrowed between the eyes, black, laterally and medially with white carinæ, the medial carina distinctly stouter than the marginal carinæ, in the ♀ the frontal area as well as the carinæ rusty-yellow; clypeus in both ♂ and ♀ rusty-yellow, laterally and medially carinate; antennæ yellowish; eyes brown; pronotum and mesonotum in ♂ yellowish-brown, in ♀ rusty-yellow with a clear elongate streak extending from the vertex to the pronotum and mesonotum, white, as also are the carinæ and the parts intermediate between them; tegmina narrow, elongate, rounded posteriorly, hyaline with the inner half shaded with brown, veins yellow, slightly granulate, the veins and sutural margin yellowish-white, the apical margin brownish; wings hyaline with yellow veins; abdomen yellowish-brown, the margins of the ventral segments brightly so in the ♂, rusty-yellow in the ♀, the legs pale yellow, the apices of the spines and the claws black.

"♂. Genital segment seen from the side transversely truncate, aperture roundish beneath, lightly emarginate; claspers large and robust, the whole aperture filled up, at the base broad, towards the upperside widened into the shape of a head and produced

into a blunt point directed outwards and upwards; anal tube large with stout carinæ.

"*Brachypterous-formed* ♀.—Tegmina very short, not extending to the apex of the abdomen, narrow, elongate, rounded at the apex, with delicate nervures." (*Melichar.*)

"♂ ♀. Length $2\frac{3}{4}$ to 3 millim."

Hab. Ceylon; Peradeniya, Colombo (*fide Melichar*).

2094. **Liburnia sordescens**, *Motsch.* (Delphax) *Bull. Soc. Nat. Mosc.* xxxvi (3) p. 109 (1863); *Melich.* (Liburnia) *Hom. Faun. Ceylon*, p. 102, t. ii, f. 24, *a* (1903).

"Dirty yellowish-brown; face elongate quadrate, not narrowed between the eyes, broader than in the rest of the Ceylonese species of *Liburnia*, yellowish-brown to piceous, with similarly coloured lateral and medial carinæ; eyes brown; antennæ yellow to brownish-yellow; pronotum and mesonotum dirty yellowish-brown, with similarly-coloured elongate carinæ; frequently the sides of the mesonotum on the outer side of the carinæ are brown, the whole mesonotum is seldom piceous; tegmina hyaline clouded with yellow, with delicate yellow veins traversing them, which are distinctly granulose, the apical margins and the apical veins brown, on the clavus at the apex of the forked nervure is a piceous spot; wings hyaline with yellow veins; abdomen black, rusty-brown at apex; legs dirty yellowish-brown, the tibiæ often darker.

"♂. The genital segment cylindrical, yellowish-brown, brighter on the margin above, the anal tube roundly emarginate, the angles of the emargination not bent inwards; the anal tube shows on the under margin two wide spike-like appendages that are opposed one to the other; anal spike brown; claspers pale yellow on rather broad bases, they are contracted above into neck-like shapes and at the apices widened into rhomboidal plates which are produced into two pointed teeth, the upper tooth is curved towards the inner side, the lower tooth, small and obtuse, is pointed inwardly." (*Melichar.*)

"♂ ♀. Length 3 to $3\frac{1}{4}$ millim."

Hab. Ceylon: Peradeniya (*fide Melichar*).

2095. **Liburnia pallidula**, *Melich. Hom. Faun. Ceylon*, p. 103 (1903).

"Very like the following species, *L. flavida*, but can be distinguished by the vertical depressions being entirely black and the frontal carinæ narrowly bordered with black; the tip of the apical vein of the fully-developed tegmina brownish. In the short-winged form the tegmina extend to about the middle of the abdomen, and are hyaline, with bright yellow lightly-punctured veins, the apical cell very short." (*Melichar.*)

"♀. Length $3\frac{1}{2}$ millim. Those with the short tegmina 3 millim."

Hab. Ceylon; Colombo (*fide Melichar*).

2096. **Liburnia flavida**, *Melich. Hom. Faun. Ceylon*, p. 103 (1903).

"The whole body with the exception of the eyes, which are brown, bright yellow, the underside and legs rather brighter; ocelli placed in front of the eyes, marked with small black dots; apex of rostrum black; legs pale yellow, apices of spines on the posterior tibiæ and the tarsal claws brown; tegmina elongate, hyaline, with bright yellow veins, the apical marginal vein brownish.

"♂. Genital segment elongate, seen from the side abruptly (or transversely ?) truncate, bright yellow with a faint brown spot on the sides that extends forward on to the dorsum of the penultimate segment; girth narrow, oval, above sinuate, beneath very lightly sinuate; claspers very long, narrowly lanceolate, constricted outwardly at apex, produced outwardly into an elongate point, bright yellow, the apex black.

"♀. Vaginal pad (?) narrow, bright yellow; adjacent plates standing near each other, broad at the base, narrowed posteriorly, apex acute; apex of the abdominal spike black, the inner margin rounded." (*Melichar.*)

"♂ ♀. Length 3 to $3\frac{1}{4}$ millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).

2097. **Liburnia albomarginata**, *Melich. Hom. Faun. Ceylon*, p. 103 (1903).

"Rusty-yellow, nearly orange-yellow; the carinæ on the vertex, pronotum, and mesonotum, as on the face and clypeus, white; facial area yellow; clypeus brown, the white medial carina particularly standing out strongly; eyes brown, ocelli black; antennæ yellowish-brown, especially the little dark tubercles on the second joint; the median carina of the vertex, pronotum, and mesonotum more conspicuously white than the lateral carinæ, apex of mesonotum white; tegmina short, extending to the middle of the abdomen, rounded posteriorly, hyaline, with distinctly punctured veins, the encircling vein white; abdomen orange-yellow, a median line on the dorsum and several spots on the sides white; legs bright yellowish-white, the claws black; ♀ ovipositor brown, anal tube and vagina bright yellow." (*Melichar.*)

"♀. Length 2 millim."

Hab. Ceylon; Henaratgoda (*fide Melichar*).

2098. **Liburnia furcifera**, *Horv.* (Delphax) *Termesz. Füzetek*, xxii, p. 372, f. 1 (1899), fig. genitalia; *Matsum.* (Liburnia) *Entom. Nachr.* xxvi, p. 262 (1900); *Melich. Hom. Faun. Ceylon*, p. 104, t. ii, f. 16 (1903).

"Vertex $1\frac{1}{2}$ times as long as broad, yellowish-white, the anterior depressions black; face elongate narrow, slightly narrowed between the eyes, black in ♂, yellowish-brown in ♀, the carinæ white; clypeus yellowish-brown to piceous, the carinæ yellowish-

white; eyes brown; antennæ yellowish-brown, extending beyond the eyes; pronotum white medially with two punctured dots, behind the eyes black outwardly-directed arched carinæ; mesonotum black, the space between the carinæ as well as the carinæ themselves and the apex of the mesonotum yellowish-white, sometimes with a tinge of reddish-yellow; tegmina hyaline, veins brownish-yellow, apical marginal veins brown, on the terminal margin a dark elongate spot; wings hyaline; abdomen in ♂ black, the margins of the segments yellowish-white, in the ♀ above black, beneath pale yellow; legs pale yellow.

"♂. Genital segment large, seen from the side transversely (?) truncate, the outline elongate-oval, above broadly, below slightly emarginate, provided with two very small tubercles; claspers thick, narrowed to a point, and at the apex divided into two small teeth, brown, set with short hairs; anal tube large, brownish-yellow, provided on the under margin with two thick, approximate, downward-directed, short, acute spines.

"♀. Vaginal cushion elongate, narrow, pale yellow; the adjoining plates narrow, the inner margins not touching one another, about half as long as the vaginal cushion, posteriorly rounded, pale yellow; ovipositor pale yellow, the anal spike black." (*Melichar.*)

"♂ ♀. Length $4\frac{3}{4}$ to 5 millim."

Hab. Ceylon; Peradeniya (*fide Melichar*).—Japan; Sapporo, Tokyo, and Kuschu (*Matsumura*).

2099. **Liburnia? marginalis,** *Motsch.* (Delphax) *Bull. Soc. Nat. Mosc.* xxxvi (3) p. 108 (1863); *Melich. Hom. Faun. Ceylon,* p. 104 (1903).

"Elongate, posteriorly subdilated, parallel, sordidly testaceous; eyes and abdomen infuscate; tegmina hyaline, subfuliginous, veins testaceous, costal margin obscure, posteriorly black; head transverse, posteriorly profoundly bifoveolate, the interstices marginally elevated, anteriorly subarcuately truncate, very distinctly rugosely punctate; face medially and laterally carinate; antennæ with the second joint incrassate, nearly twice longer than the first joint; pronotum transversely triangular, moderately bicarinate, medially slightly bilineate, posteriorly somewhat marginately reflexed, the anterior edge broad, medially profoundly sinuate; mesonotum triangular, medially inflexed, transversely slightly strigose; tegmina elongate, anteriorly arcuately dilated, posteriorly parallel, apically rounded, anterior veins elevated." (*Motschoulsky.*)

"Length $1\frac{2}{5}$ lin.; lat. elytr. post. $\frac{2}{3}$ lin."

Hab. Ceylon; Nura-Ellia and Patannas Mts. (*fide Motschoulsky*).

2100. **Liburnia? coloratus,** *Motsch.* (Delphax) *Bull. Soc. Nat. Mosc.* xxxvi (3) p. 110 (1863); *Melich. Hom. Faun. Ceylon,* p. 105 (1903).

"Resembling the preceding species, but the tegmina posteriorly with lateral sutural strigæ, in form of X, piceous, elongate, poste-

riorly somewhat dilated, parallel, piceous ; head, posterior margin of pronotum and its anterior edge, abdominal segments, and annulations to legs above somewhat sordidly testaceous ; pronotal anterior edge broad, hardly sinuate ; tegmina hyaline, the posterior lateral sutural strigæ obliquely piceous, veins elevated, fuscous, testaceous, a little piceously crenulate." (*Motschoulsky.*)

" Length $1\frac{1}{5}$ lin. ; lat. elytr. post. $\frac{1}{2}$ lin."

Hab. Ceylon ; Patannas Mts. (*fide Motschoulsky*).

Genus MESTUS.

Mestus, *Motsch. Bull. Soc. Nat. Mosc.* xxxvi (3) p. 111 (1863) ; *Melich. Hom. Faun. Ceylon*, p. 105 (1903).

Type, *M. morio*, Motsch.

Distribution. Ceylon.

"Abridged in shape like some of the *Deltocephalinæ*, but with the vertex straight, not produced in front; face strongly tricarinate, the lateral carinations prolonged on the upper side of the head; antennæ twice as long as the head and pronotum united as in *Delphax*, with the second joint three times longer than the first ; eyes oblong, prominent, sinuate beneath ; pronotum straighter than the head, produced forwardly to nearly half the length of head; mesonotum joined to the pronotum and indistinct ; tegmina cartilaginous, not or only a little hyaline, oval, attenuated or truncated behind and not extending beyond the apex of the abdomen ; veins prominent, sometimes articulate, and all longitudinal almost to extremity, the direction of the subradial and posterior veins here a little approaches the median vein, giving to each a veinlet which reaches the extremity of the tegmen, whilst they are reunited to the median vein by two small transverse veins, after which there are only two parallel veins which reach the extremity ; legs long and rough, posterior tibiæ very long and armed with three spines ; tarsi robust, their first joint longer than the others together." (*Motschoulsky.*)

I have not seen this genus, but the shortened tegmina will alone distinguish it.

2101. **Mestus morio**, *Motsch. Bull. Soc. Nat. Mosc.* xxxvi (3) p. 111, t. ii, f. 24, ♀ (1863) ; *Melich. Hom. Faun. Ceylon*, p. 105, t. ii, f. 15 (1903).

" Elongate, subovate, shining black ; antennæ and legs sordidly pale ; eyes piceous ; head transverse, convex ; vertex subinflexed, tricarinate, the carinæ anteriorly arcuately meeting, obsolete ; face whitishly tricarinate, the medial carination anteriorly abbreviated ; eyes large, oblong, subprominent ; pronotum transverse, posteriorly acutely produced, widely tricarinate, medial carination tectiformly elevated, anterior margin broad and medially tectiformly elevated ; tegmina anteriorly as wide as thorax, towards middle a little gradually dilated, posteriorly moderately attenuated, apically on

each side rounded, veins elevated, cellular areas elongate, subglabrous, shining." (*Motschoulsky.*)

"Length $\frac{5}{8}$ lin.; lat. elytr. med. $\frac{2}{5}$ lin."

Hab. Ceylon; Patannas Mts. (*fide Melichar*).

Motschoulsky's figure is quite inadequate; that given by Melichar is only an outline of the genital segment.

2102. **Mestus testaceus**, *Motsch. Bull. Soc. Nat. Mosc.* xxxvi (3) p. 112 (1863).

This is enumerated by Melichar as the female of *T. morio*, which may probably be correct or otherwise, as further and ample material can alone decide. I prefer with this proviso to keep it distinct, and give the original description:—

"Shape and form of *M. morio*, but a little larger, sordidly palely shining testaceous, abdomen medially infuscated, pronotum with three whitish vittæ or carinations; tegmina subhyaline testaceous, veins elevated, fuscously subarticulated; head transverse, the vertex posteriorly bifoveolate, anteriorly with four acute carinations, the medial carinæ approximating apically; face tricarinate; pronotum tricarinate, its anterior margin unicarinate; tegmina veined as in preceding species." (*Motschoulsky.*)

"Length 1 lin.; lat. elytr. med. $\frac{1}{2}$ lin."

Hab. Ceylon; Nura-Ellia and Patannas Mts. (*fide Motschoulsky*).

Genus EODELPHAX.

Eodelphax *Kirk. Entomologist*, 1901, p. 39; *id. Wien. ent. Zeit.* 1905, p. 266.

Eudelphax, *Melich. Hom. Faun. Ceylon*, p. 32 (1903).

Type, *E. serendiba*, Kirk.

Distribution. Ceylon.

"Vertex nearly square, depressed inwardly, the lateral margins forming a sharp carina extending alongside the inner margin of the eyes as far as the intero-posterior angle of the latter, which extends posteriorly almost as far as to the base of the pronotum; these carinæ are continued forward to the apex of the head, forming a right angle there; the part of the vertex anterior to these carinæ is depressed inwards, declivous, and rounded marginally; vertex feebly carinate medianly longitudinally; face long-oval, truncate at each end, carinate (with clypeus) medianly; clypeus long, triangular; antennæ prominent, very large, first segment compressed and dilated, obliquely triangular, the interior side longer than the exterior, second joint slightly longer than the first, compressed, very tuberculate; eyes latero-ventrally deeply grooved medianly to admit the cariniform first joint of the antennæ during repose; rostrum reaching the posterior coxæ; pronotum slightly narrower apically than the base of the head, expanded broadly about as far as the exterior margins of the eyes, feebly tricarinate; mesonotum longer than head and pronotum together, feebly 5-carinate;

tegmina extending far beyond apex of abdomen, the majority of the veins somewhat closely granulate; legs simple, posterior tibiæ trispinose." (*Kirkaldy.*)

This genus is now a puzzle, for Kirkaldy, who described it as one of the *Delphacinæ*, states that it is synonymous with *Eudelphax* described and placed by Melichar in the *Cixiinæ*. I have been unable to see an example *.

2103. **Eodelphax serendiba,** *Kirk. Entomologist,* 1901, p. 40; *id. Wien. ent. Zeit.* 1905, p. 266.
Eudelphax setulosus, *Melich. Hom. Faun. Ceylon,* p. 32, t. i, f. 6 (1903).

"Subfuscous, hyaline; tegmina obscurely marked with dark brown, three small spots on the interior margin of the clavus, and some irregular ones on the membrane; the legs (especially femora), antennæ, &c. chequered with blackish brown; vertex dirty stramineous.

"♀. Only the first (apparent) ventral segment is entire, the ovipositor extending backwards as far as the apex of the (apparent) third." (*Kirkaldy.*)

"Length 7½ millim."

Hab. Ceylon; Pundaluoya (*Green*).

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* Mr. Green informs me that he has no specimen in his collection under the name of *Eodelphax serendiba,* and the type is therefore probably in the possession of Mr. Kirkaldy, who is abroad and his collection not available for comparison or examination.

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